

Geography

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Faculty

Professor S. C. Larsen*

Associate Professor M. W. Foulkes*, T. Matisziw*, M. Palmer,* M. A. Urban*, G. Elliott*

Assistant Teaching Professor C. Blodgett*, D. Hurt*

Instructor T. Vought

Professor Emeritus J. J. Hobbs*, C. L. Salter*

Associate Professor Emeritus G. S. Ludwig*, W. A. Noble, W. A. Schroeder*

Adjunct Professor C. H. Davis*, R. Scott*

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

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

Undergraduate

- BA in Geography (<http://catalog.missouri.edu/collegeofartsandscience/geography/ba-geography/>)
 - with emphasis in General Geography (<http://catalog.missouri.edu/collegeofartsandscience/geography/ba-geography-emphasis-general-geography/>)
 - with emphasis in Geographic Information Sciences (<http://catalog.missouri.edu/collegeofartsandscience/geography/ba-geography-emphasis-geographic-information-sciences/>)
 - with emphasis in Physical/Environmental (<http://catalog.missouri.edu/collegeofartsandscience/geography/ba-geography-emphasis-physical-environmental/>)
 - with emphasis in Regional/Cultural (<http://catalog.missouri.edu/collegeofartsandscience/geography/ba-geography-emphasis-regional-cultural/>)
- Minor in Geography (<http://catalog.missouri.edu/collegeofartsandscience/geography/minor-geography/>)

The department also offers a Certificate in Geographical Information Science - Interdisciplinary (<http://catalog.missouri.edu/collegeofartsandscience/additionalcertificatesminors/cert-geographical-information-science-interdisciplinary/>).

The Department of Geography has established the following goals for the Bachelor of Arts with a major in Geography:

- Teach students to think spatially and develop problem solving skills
- Provide an intellectual focus for students seeking a broadly based liberal arts education
- Acquaint students with past and present patterns of landscape development and instill concern for intelligent management of earth's biophysical resources

- Expose students to contemporary issues of geopolitical and international significance and their role in such problems
- Provide the skills and expertise necessary to master the application of geographic information technologies and analysis of spatial data
- Prepare motivated students for career development and graduate study

Four different emphasis areas allow students to further focus the undergraduate degree program on their own personal interests in geography.

1. Human-Regional-cultural geography helps students develop a fuller sense of geographic analysis and better understanding of the human and physical characteristics of major regions and settlement patterns of the world.
2. Physical-environmental systems emphasize the complex interactions between biophysical systems and human behavior in the areas of geomorphology and biogeography, as well as our role in managing applied environmental problems.
3. Geographic information sciences addresses the variety of technologies revolutionizing geographic analysis such as GIS, GPS, remote sensing, computer assisted cartography and spatial statistics.
4. General geography is designed for the student with broad interests in geography that overlap with other emphasis areas.

For students planning to end their formal education with the bachelor's degree, a geography major provides marketable skills and the broad perspectives on environment, society and international affairs that enable graduates to move beyond entry-level positions. Geography also provides a sound foundation for students who plan to enter graduate work in a variety of fields, from geography to business, land use planning, law and medicine. Although positions are not often designated with the title of geographer, geography graduates' employment has grown substantially in private enterprise and in all levels of government in recent years.

The Department offers BA and MA degrees with majors in geography as well as undergraduate and graduate certificates in Geographic Information Science and Geospatial Intelligence. Two minors are also available.

Departmental Honors

The geography honors program requires independent research during the senior year, usually under GEOG 4996H or GEOG 4997H . Consult the geography honors director for further information.

Graduate

- MA in Geography (<http://catalog.missouri.edu/collegeofartsandscience/geography/ma-geography/>)

The department also offers a Graduate Certificate in Geographical Information Science - Interdisciplinary (<http://catalog.missouri.edu/collegeofartsandscience/additionalcertificatesminors/grad-cert-geographical-information-science-interdisciplinary/>).

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Director of Graduate Studies: Matthew Foulkes

About Geography

The Department of Geography offers a Master of Arts degree that prepares students for a variety of professions, including careers in academics, research, public service, and the private sector. The MA program has a high success rate of preparing students for doctoral study in top-tier geography departments across the United States.

A primary strength of the department is the blending of major research facilities and opportunities with individual student-faculty interaction to build a strong sense of community. Students interested in questions of human geography, the physical environment, or geographic information sciences will find that the department has facilities and faculty expertise to build a successful plan of study.

Core areas of study in the department include human geography, nature/society relationships, physical-environmental systems, and application of geographic information sciences. The faculty has an active program of research and field work in North America, Middle America, the Middle East and Southeast Asia. They pride themselves on a creative instructional and interdisciplinary pattern of activity. The department emphasizes close contact between faculty and graduate students.

Individualized graduate programs allow latitude in areas of specialization such as regional, cultural, and physical geography, as well as geographic information sciences, remote sensing, environmental studies and geographic education. Strong collateral course work in such fields as anthropology, soil and atmospheric science, economics, geology, political science, forestry, computer science and history meets the special interests of many graduate students.

Facilities and Resources

An exceptional departmental collection of reference materials, including maps, journals and books, is available to graduate students in the department's Wheeler Library and Seminar Room. The holdings of Ellis Library in geography and related fields are extensive and MU's computer facilities are readily available. In addition, the department is home to the Geographic Resources Center (GRC), the Missouri Spatial Data Information Service and the Spatial Analysis and Modeling teaching laboratory. These facilities serve as an interdisciplinary center for GIS, remote sensing, cartography, computer graphics and digital spatial databases of enormous variety.

Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details. In Geography, a total of approximately 6 graduate teaching and research assistantships are awarded on a competitive basis annually. Applicants desiring consideration for one of these positions should indicate this in their application to the department.

GEOG 1050: Introductory Meteorology

(same as ATM_SC 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

Credit Hours: 3

Prerequisites: Enrollment restricted to students enrolled in the College of Arts and Science

GEOG 1050H: Introductory Meteorology - Honors

(same as ATM_SC 1050H). Physical processes of atmosphere in relation to day-to-day changes in weather.

Credit Hours: 3

Prerequisites: Enrollment restricted to students enrolled in the College of Arts and Science; Honors eligibility required

GEOG 1100: Regions and Nations of the World I

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

Credit Hours: 3

GEOG 1100H: Regions and Nations of the World I - Honors

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

Credit Hours: 3

Prerequisites: Honors eligibility required

GEOG 1200: Regions and Nations of the World II

Introductory analysis for general education. Regional character, spatial relationships, problems of environment and development of the former Soviet Union, Pacific World, South and East Asia, Africa and Middle East. Organized around basic concepts in the field of geography. May be taken independently of GEOG 1100.

Credit Hours: 3

GEOG 1205H: Regions and Nations General Honors

Credit Hours: 3

Prerequisites: Honors eligibility required

GEOG 1550: Introduction to the Humanized Earth

Examines human culture as a geographical element; the power of culture and human institutions in human-environmental interaction and the creation of agriculture, folk culture, popular culture, cities, and a broad range of cultural landscapes.

Credit Hours: 3

GEOG 1600: Climate Change: Science and Public Policy

Explores the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. Examines the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: Freshman and sophomores only

GEOG 1600H: Climate Change: Science and Public Policy - Honors

Explores the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. Examines the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Graded on A-F basis only. Honors eligibility required

Credit Hours: 3

Prerequisites: Freshman and sophomores only

GEOG 1800: Digital Earth: Introduction to the Geospatial Technologies

Introduction to technologies used to map a changing world, with an emphasis on digital mapping explorations of human and environmental interactions on Earth. Course includes lab and fieldwork to introduce geographic information data collection and analysis techniques. Graded on A/F basis only. May be repeated for credit.

Credit Hours: 3

GEOG 1840: Global Environmental Change

Course uses a geographic framework to study patterns and processes related to global environmental change. Topics include environmental reconstruction, water resources, human-environment interactions, glaciers, fire, and climate.

Credit Hours: 3

GEOG 1900: Our Dynamic Planet in Film

Uses documentary films (e.g., Planet Earth) to explore how global environmental change is impacting human life and livelihoods, with a focus on the intersection of personal identity, social organization, and climate justice in patterns and processes of human-environment interaction. Films are supplemented with interactive lectures and discussions of assigned readings from both periodicals and peer-reviewed literature. Students also use critical film theory to explore the representation of nature(s) and environment(s) in the documentaries, and the effects these representations have on human-environment interaction. This synthetic approach highlights the formidable linkages on Earth between the living and nonliving, human and nonhuman, thus providing students with a holistic understanding of humankind's complex and changing relationships with the planet Earth.

Credit Hours: 3

GEOG 2010: Exploring Geography

We are all explorers. As children, we grew up testing the boundaries of our known worlds and trying to understand what was beyond. Geography gives us the means to formalize this impulse to explore the world around us, both local and distant. It allows us to make sense of the ways in which space and relationships between objects drives much of human, social, and environmental interaction. In this course, we will illustrate some of the principle ways in which Geographers investigate, explain, and map meaning, pushing the boundaries of what we know as individuals and society. Using a combination of discussion and field exercises, students will be asked to engage with a number of critical societal issues that have

geographical elements at their core. Examples include the Geography of crime, imagining place, the city of the future, environmental change, terrorism, human trafficking, drones, and sustainability.

Credit Hour: 1

GEOG 2120: United States and Canada

Intensive examination of selected areas and distributions. Regional systems, problems and planning.

Credit Hours: 3

Prerequisites: Sophomore standing

GEOG 2130: Geography of Missouri

Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues.

Credit Hours: 3

Prerequisites: GEOG 1100

GEOG 2130H: Geography of Missouri - Honors

Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues.

Credit Hours: 3

Prerequisites: GEOG 1100; Honors eligibility required

GEOG 2280: Race, Democracy, and Violence in Cuba and Haiti

(same as PEA_ST 2280, SOCIOL 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

Credit Hours: 3

GEOG 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive

(same as PEA_ST 2280W, SOCIOL 2280W). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

Credit Hours: 3

GEOG 2289: Towns in Missouri and the Midwest: Voices and Inequalities

(same as PEA_ST 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by "middle America." The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography. Graded on A-F basis only.

Credit Hours: 3

GEOG 2293: Globalization, Identity and Citizenship

(same as PEA_ST 2293, POL_SC 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses - psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

Credit Hours: 3

GEOG 2293W: Globalization, Identity and Citizenship - Writing Intensive

(same as PEA_ST 2293W, POL_SC 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses - psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

Credit Hours: 3

GEOG 2340: South America

Physical environment and culture in the regional development of South America.

Credit Hours: 3

Prerequisites: One course in geography or instructor's consent

GEOG 2610: Climate, Landforms and Vegetation: Introduction to Physical Geography

Examination of the interacting natural systems comprising the Earth's physical environment, including the atmosphere, biosphere, and land forms. Focus on relating fundamental physical, chemical and ecological processes to the global geographic patterns they produce.

Credit Hours: 3

GEOG 2660: Environmental Geography

Historical perspectives on the human agency in transforming the earth, with emphasis on international environmental problems. Topics include basic biogeography; environmental impacts of population growth,

underdevelopment and overdevelopment; and new approaches to management of global resources.

Credit Hours: 3

GEOG 2710: Economic Geography

Geographical location and organization of world's major economic activities. Emphasizes agricultural and industrial patterns, commodity flows, transport networks, geographical principles of market and industrial location, internal spatial organization of cities, land-use models, geographic aspects of economics growth.

Credit Hours: 3

Prerequisites: GEOG 1100 or GEOG 1200 or sophomore standing

GEOG 2720: The City

Study of cities: origin, development, distribution; social, economic, and demographic significance. Consideration of theories of structure, urban hierarchies, and land-use planning.

Credit Hours: 3

GEOG 2904: Topics in Geography-Social Science

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

Credit Hour: 1-3

Prerequisites: sophomore standing, departmental consent for repetition

GEOG 2904W: Topics in Geography-Social Science - Writing Intensive

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

Credit Hour: 1-3

Prerequisites: sophomore standing, departmental consent for repetition

GEOG 3040: Introduction to Geographic Information Systems GIS

(same as CV_ENG 3050). Introduces theory, concepts, and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using Geographic Information Systems (GIS). Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

Credit Hours: 3

Prerequisites: Sophomore standing or instructor's consent

GEOG 3060: Orientation to Public GIS

This is a one-credit-hour, fully online course for students enrolled in the undergraduate GIS Certificate Program. It is designed to introduce students to the burgeoning field of Public GIS, which involves the use of geospatial applications and analysis in government agencies, nongovernmental organizations, and civil society. Students will engage with real-world examples of projects, issues, and debates in public GIS, and will earn practical experience in case-study applications with the Missouri Spatial Data Information Service (MSDIS). Professional development for a career in public GIS will be integrated into course curriculum, including information on internships, resume and professional networking, and continuing education in GIS software and technology. Graded on A-F basis only.

Credit Hour: 1

GEOG 3140: Mexico, Central America, and the Caribbean

Physical environment and culture in the regional development of Mexico, Central America, and the Caribbean.

Credit Hours: 3

GEOG 3270: Geography of the Middle East

Cultural, physical and historical geography of Middle East, with emphasis on cultural adaptations to environments and conflicts over the resources.

Credit Hours: 3

GEOG 3385: Special Problems in Geography

Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours.

Credit Hour: 1-3

Prerequisites: instructor's consent

GEOG 3496: Digital Indigenous Studies

(same as PEA_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

Credit Hours: 3

GEOG 3496W: Digital Indigenous Studies - Writing Intensive

(same as PEA_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over

the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

Credit Hours: 3

GEOG 3510: Historical Geography of North America

Analysis of selected geographical patterns and themes in the continent's past. Focus is explicitly geographical, stressing extensive use of maps and recent scholarly work by historical geographers.

Credit Hours: 3

Prerequisites: Junior standing, or instructor's consent

GEOG 3560: Native American Geographies

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives, including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and Geographic Information Systems (GIS) representations, and natural resources.

Credit Hours: 3

Recommended: This is an upper-division course. Junior standing is recommended

GEOG 3560W: Native American Geographies - Writing Intensive

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

Credit Hours: 3

GEOG 3580: Placewriting

This class explores creative nonfiction work that attends to the geographical dimensions of human experience and the character of place - "placewriting". Students will investigate how creative nonfiction evokes the human relationship with place and the geographical dimensions of personal and group identity. The class consists of two parts: discussion and critique of six creative nonfiction works on place, and a writer's workshop designed to enable students produce their own work in the genre focused on a local community or place.

Credit Hours: 3

Recommended: GEOG 1550

GEOG 3600: Climates of the World

(same as ATM_SC 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity.

Credit Hours: 3

Prerequisites: MATH_0110 or equivalent or graduate standing

Corequisites: By permission, only

GEOG 3610: Physical Geography of the United States

Study of natural regions of the United States by integrating topics from landforms, geology, climate, soils, vegetation, resources, and land use.

Credit Hours: 3

Prerequisites: GEOG 2610

GEOG 3630: Earth Surface Systems

Systematic study of landforms geomorphic processes governing them. Provides a foundation for the theoretical, technical, and practical understanding of environmental systems.

Credit Hours: 3

GEOG 3740: Geography and Planning

Emphasis on geographic techniques for gathering and generating environmental information for planners. Principles of land-use planning will be applied to selected regions.

Credit Hour: 1-3

GEOG 3760: Geography of the World's Religions

(same as REL_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

Credit Hours: 3

GEOG 3760W: Geography of the World's Religions - Writing Intensive

(same as REL_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

Credit Hours: 3

GEOG 3780: World Political Geography: Patterns and Processes

(same as PEA_ST 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

Credit Hours: 3

GEOG 3800: Geography of Travel and Tourism

Examines the fundamentals of the geography of tourism and travel in both foreign and domestic contexts. During the past few decades, tourism has been a fast-growing industry around the world, although tourism can easily be negatively influenced by terrorism, natural disasters, and economic downturns. Looks at several common types of tourism and focus on the positive and negative impacts of tourism upon local cultures, the environment, and economic development. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 1100 or GEOG 1200 or sophomore standing

GEOG 3830: Remote Sensing

Introduction to the principles of remote sensing of the environment. Digital imagery from spacecraft, conventional and high-altitude aerial photography, thermal imaging, and microwave remote sensing.

Credit Hours: 3

GEOG 3840: Cartography

Principles of computer-assisted cartography. Automated cartographic display. Hands-on experience with computer-mapping software and hardware systems. Role of computers in map design. Digital encoding of geographic data.

Credit Hours: 3

GEOG 4130: The Geospatial Sciences in National Security

(same as CV_ENG 4175; cross-leveled with GEOG 7130, CV_ENG 7175). Explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

Credit Hours: 3

Prerequisites: Junior standing or above required

GEOG 4200: Geopolitics

(cross-leveled with GEOG 7200). Geopolitics examines politics, especially international relations, as influenced by geographical factors. To reveal and forecast global trends, we examine the interactions of geographical contexts and perspectives with international and domestic political processes. Our geopolitical analysis is both thematic and regional. Geographical themes are multi-disciplinary and include location and place, physical geography and natural resources, population and immigration, culture and ethnicity, religion, economics and trade, foreign policy, conflict, globalization, and development. These are examined in the context of eight world regions and the polar realms. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 1100 or GEOG 1200

GEOG 4390: Special Readings in Geography

Independent readings selected in consultation with supervisory faculty member. May be repeated to a maximum of 6 hours.

Credit Hour: 1-3

Prerequisites: instructor's consent and independent study contract

GEOG 4400: Geographies of Terrorism and Drugs

(cross-leveled with GEOG 7400). The course examines the parallel and independent geographies of terrorism and drugs. Their common features include dangerous cultural landscapes that cannot sustain other forms of land use. They are typically marginal, remote, and beyond the reach of authorities. Crackdowns on terrorists and drug producers in one locale usually fails to eradicate the problems as they emerge elsewhere. The wars on terrorism and drugs often stimulate greater enrollments and production. Where poverty and alienation are common, both livelihoods offer social accommodation and ready entry into the cash economy. Alternative means of combating terrorism and drug production are explored. Grading on A-F basis only.

Credit Hours: 3

Recommended: GEOG 1100 and GEOG 1200

GEOG 4450: Health, Healthcare Access, and Geography

(cross-leveled with GEOG 7450). In this course, the major themes of health and medical geographic research and applications to real world

problems (including the COVID-19 pandemic, environmental justice, and social justice and equity in healthcare) will be discussed. Students will develop the skills necessary to identify and apply these themes and the conceptual knowledge and tools available to address issues in public health, healthcare, and disease spread. While the course covers a number of topics, opportunities will be available for students to develop clear health and medical geography connections to their own personal, academic, and career interests. Additionally, students will have access to learning and engaging with GIS (geographic information systems) through guided labs employing GIS to support the students' basic understanding of health and GIS applications. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 3040

GEOG 4560: Resources and Indigenous Peoples

(cross-leveled with GEOG 7560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

Credit Hours: 3

Prerequisites: Junior standing required

GEOG 4560W: Resources and Indigenous Peoples - Writing Intensive

(cross-leveled with GEOG 7560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

Credit Hours: 3

Prerequisites: Junior standing required

GEOG 4620: Biogeography: Global Patterns of Life

(cross-leveled with GEOG 7620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

Credit Hours: 3

Recommended: GEOG 2610

GEOG 4620W: Biogeography: Global Patterns of Life - Writing Intensive

(cross-leveled with GEOG 7620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

Credit Hours: 3

Recommended: GEOG 2610

GEOG 4630: River and Stream Dynamics

(cross-leveled with GEOG 7630). Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

Credit Hours: 3

Prerequisites: GEOG 2610 and GEOG 3630, or instructor's consent

GEOG 4680: Severe Weather and Society

(cross-leveled with GEOG 7680). On the one hand, this course focuses on the social impacts of severe weather phenomena including thunderstorms, tornadoes, hail storms, lightning, and hurricanes. On the other, it is about non-fiction storytelling and the creation of intriguing digital representations that can foster new ways knowing about tornadoes, hail, and other things that fall from the sky and impact people on the ground. Atmospheric scientists have contributed much to the scientific understanding of severe weather. Geographers also have an intellectual history associated with storm research including perceptions of severe weather, vulnerability analysis, and hazards mitigation. More recently, geospatial technologies like geographic information systems (GIS) have contributed to severe weather research and applications in the field including storm spotting, chasing, forecasting, and alerts. How can we bridge science, the humanities, and digital technologies in ways that intrigue and inform the general public about severe weather. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 2610

GEOG 4710: Spatial Analysis in Geography

(cross-leveled with GEOG 7710). Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data. Math Reasoning Proficiency Course.

Credit Hours: 3

Recommended: MATH 1100 or MATH 1120

GEOG 4740: Location Analysis and Site Selection

(same as CV_ENG 4185; cross-leveled with GEOG 7740, CV_ENG 7185). Overview of location analysis in regional-planning and spatial-decision support. Focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

Credit Hours: 3

GEOG 4770: Migration and Immigration

(cross-leveled with GEOG 7770). Explores demographic, economic, and social issues surrounding immigration and migration. Focuses on the global labor migration system, immigration to the United States, and internal migration within the U.S., as well as the linkages between these systems.

Credit Hours: 3

GEOG 4790: Geographic Information Systems for the Social Sciences

(cross-leveled with GEOG 7790). Designed for social science students interested in learning about the tools available in Geographic Information Systems (GIS) for linking to and analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

Credit Hours: 3

Prerequisites: Juniors and seniors only

GEOG 4810: Landscape Ecology and GIS Analysis I

(same as NAT_R 4385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

Credit Hours: 3

Prerequisites: GEOG 3040, or instructor's consent

GEOG 4850: Transportation Geography

(same as CV_ENG 4155; cross-leveled with GEOG 7850, CV_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

Credit Hours: 3

GEOG 4860: Advanced Remote Sensing

(cross-leveled with GEOG 7860). Advanced remote sensing to provide digital-image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land-use/land-cover change detection. Class project heavily involved.

Credit Hours: 3

Prerequisites: GEOG 3830

GEOG 4880: Environment and Empire in Russia and Eurasia

(same as RUSS 4880). Explores major themes in the nature-society relationships that have shaped Russia and Eurasia over time. Interactive mapping activities are paired with close readings of Russian and Eurasian literature to interpret regional cultures and environments in historical and political context. Students complete a capstone project based on original research.

Credit Hours: 3

GEOG 4880W: Environment and Empire in Russia and Eurasia - Writing Intensive

(same as RUSS 4880W). Explores major themes in the nature-society relationships that have shaped Russia and Eurasia over time. Interactive mapping activities are paired with close readings of Russian and Eurasian literature to interpret regional cultures and environments in historical and political context. Students complete a capstone project based on original research.

Credit Hours: 3

GEOG 4904: Topics in Geography-Social Science

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental consent for repetition.

Credit Hour: 1-12

Prerequisites: Junior standing

GEOG 4904W: Topics in Geography-Social Science - Writing Intensive

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental consent for repetition.

Credit Hour: 1-12

Prerequisites: Junior standing

GEOG 4940: Advanced Geographic Information Systems (GIS II)

(cross-leveled with GEOG 7940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems (GIS) technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

Credit Hours: 3

Prerequisites: GEOG 3040 or instructor's permission

GEOG 4945: Internship in Applied Geography and Cartography

Regularized individual work experience with local, regional, state or national agencies, with guidance and readings supplied by faculty coordinator. May repeat to maximum of 6 hours.

Credit Hour: 1-3

Prerequisites: Departmental consent required

GEOG 4990: Senior Seminar in Geography

A seminar in selected themes in geography. Class will focus on research, writing, presenting, and discussing themes in contemporary geography. Required of all majors prior to graduation.

Credit Hours: 3

Prerequisites: Five courses in geography or instructor's consent

GEOG 4996H: Honors in Geography

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

Credit Hours: 3

GEOG 4996HW: Honors in Geography - Honors/Writing Intensive

Special work for Honors candidates in geography.

Credit Hours: 3

Prerequisites: Honors eligibility required

GEOG 4997H: Honors in Geography

Special work for Honors candidates in geography.

Credit Hours: 3

Prerequisites: Honors eligibility required

GEOG 7130: The Geospatial Sciences in National Security

(same as CV_ENG 7175; cross-leveled with GEOG 4130). Explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

Credit Hours: 3

Prerequisites: Instructor's consent

GEOG 7200: Geopolitics

(cross-leveled with GEOG 4200). Geopolitics examines politics, especially international relations, as influenced by geographical factors. To reveal and forecast global trends, we examine the interactions of geographical contexts and perspectives with international and domestic political processes. Our geopolitical analysis is both thematic and regional. Geographical themes are multi-disciplinary and include location and place, physical geography and natural resources, population and immigration, culture and ethnicity, religion, economics and trade, foreign policy, conflict, globalization, and development. These are examined in the context of eight world regions and the polar realms. Graded on A-F basis only.

Credit Hours: 3

GEOG 7400: Geographies of Terrorism and Drugs

(cross-leveled with GEOG 4400). The course examines the parallel and independent geographies of terrorism and drugs. Their common features include dangerous cultural landscapes that cannot sustain other forms of land use. They are typically marginal, remote, and beyond the reach of authorities. Crackdowns on terrorists and drug producers in one locale usually fails to eradicate the problems as they emerge elsewhere. The wars on terrorism and drugs often stimulate greater enrollments and production. Where poverty and alienation are common, both livelihoods offer social accommodation and ready entry into the cash economy. Alternative means of combating terrorism and drug production are explored. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 7200

GEOG 7450: Health, Healthcare Access, and Geography

(cross-leveled with GEOG 4450). In this course, the major themes of health and medical geographic research and applications to real world problems (including the COVID-19 pandemic, environmental justice, and social justice and equity in healthcare) will be discussed. Students will develop the skills necessary to identify and apply these themes and the conceptual knowledge and tools available to address issues in public health, healthcare, and disease spread. While the course covers a number of topics, opportunities will be available for students to develop clear health and medical geography connections to their own personal, academic, and career interests. Additionally, students will have access to learning and engaging with GIS (geographic information systems) through guided labs employing GIS to support the students' basic understanding of health and GIS applications. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 7840

GEOG 7560: Resources and Indigenous Peoples

(cross-leveled with GEOG 4560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

Credit Hours: 3

GEOG 7620: Biogeography: Global Patterns of Life

(cross-leveled with GEOG 4620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

Credit Hours: 3

Prerequisites: GEOG 2610 or instructor's consent

GEOG 7630: River and Stream Dynamics

(cross-leveled with GEOG 4630). Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

Credit Hours: 3

Prerequisites: GEOG 2610 and GEOG 3630, or instructor's consent

GEOG 7680: Severe Weather and Society

(cross-leveled with GEOG 4680). On the one hand, this course focuses on the social impacts of severe weather phenomena including thunderstorms, tornadoes, hail storms, lightning, and hurricanes. On the other, it is about non-fiction storytelling and the creation of intriguing digital representations that can foster new ways knowing about tornadoes, hail, and other things that fall from the sky and impact people on the ground. Atmospheric scientists have contributed much to the scientific understanding of severe weather. Geographers also have an intellectual history associated with storm research including perceptions of severe weather, vulnerability analysis, and hazards mitigation. More recently, geospatial technologies like geographic information systems (GIS) have contributed to severe weather research and applications in the field including storm spotting, chasing, forecasting, and alerts. How can we bridge science, the humanities, and digital technologies in ways that intrigue and inform the general public about severe weather. Graded on A-F basis only.

Credit Hours: 3

Recommended: GEOG 2610

GEOG 7710: Spatial Analysis in Geography

(cross-leveled with GEOG 4710). Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data.

Credit Hours: 3

Recommended: MATH 1100 or MATH 1120

GEOG 7740: Location Analysis and Site Selection

(same as CV_ENG 7185; cross-leveled with GEOG 4740, CV_ENG 4185). Overview of location analysis in regional planning and spatial decision support. Focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

Credit Hours: 3

GEOG 7770: Migration and Immigration

(cross-leveled with GEOG 4770). As fertility and mortality decline to record low levels, immigration and migration have become the primary components of population change. Changes brought on by immigration to a country and the internal redistribution of population via migration pose

challenges to governments, economic development, social and cultural relations, and environmental sustainability. Explores issues surrounding immigration and migration. Beginning with the demographic overview of immigration, it focuses on the challenges faced by immigrant, sending, and receiving nations in the global migration system. The second part of the course focuses on the array of issues surrounding immigration to the United States, including the socio-economic adaptation of immigrants, the economic and cultural impacts of immigration, and illegal immigration. The third part of the course focuses on internal migration within migration within the US, discussing topics such as migration to the Sunbelt, Great Plains depopulation, poverty migration, migration to the suburbs, and migration's impact on community. Linkages between domestic migration and immigration will also be explored.

Credit Hours: 3

GEOG 7790: Geographic Information Systems for the Social Sciences

(cross-leveled with GEOG 4790). Designed for social science students interested in learning about the tools available in Geographic Information Systems (GIS) for linking to an analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

Credit Hours: 3

GEOG 7810: Landscape Ecology and GIS Analysis I

(same as NAT_R 7385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

Credit Hours: 3

Prerequisites: instructor's consent

GEOG 7840: Geographic Information Systems I

Introductory study of theory, concepts and techniques related to basic analysis, creation and processing of geographic and spatial data using Geographic Information Systems (GIS). Independent learning and computer-based laboratory exercises supplement theoretical lectures and discussion.

Credit Hours: 3

GEOG 7850: Transportation Geography

(same as CV_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

Credit Hours: 3

GEOG 7860: Advanced Remote Sensing

(cross-leveled with GEOG 4860). Advanced remote sensing to provide digital-image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land-use/land-cover change detection. Class project heavily involved.

Credit Hours: 3

Prerequisites: GEOG 3830

GEOG 7904: Topics in Geography-Social Science

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

Credit Hour: 1-12

Prerequisites: Instructor's consent

GEOG 7940: Advanced Geographic Information Systems (GIS II)

(cross-leveled with GEOG 4940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems (GIS) technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

Credit Hours: 3

Prerequisites: GEOG 7840 or instructor's consent

GEOG 8080: Research in Geography

Research not leading to thesis. May be repeated to a maximum of 6 hours. Graded on S/U basis only.

Credit Hour: 1-6

Prerequisites: instructor's consent

GEOG 8085: Special Investigations in Geography

Advanced studies to meet the needs of the individual student. May be repeated to a maximum of 6 hours.

Credit Hour: 1-3

Prerequisites: instructor's consent and independent study contract

GEOG 8090: Research in Geography

Research leading to a thesis. May be repeated to a maximum of 8 hours. Graded on S/U basis only.

Credit Hour: 1-8

Prerequisites: instructor's consent and independent study contract

GEOG 8270: Seminar in the Geography of the Middle East

Advanced readings and analysis of topics in the geography of the Middle East.

Credit Hours: 3

Prerequisites: instructor's consent

GEOG 8710: Seminar

May be repeated to a maximum of 6 hours.

Credit Hour: 1-3

Prerequisites: Departmental consent

GEOG 8720: Elements of Mapping and Spatial Analysis

Elements of Mapping and Spatial Analysis is a methods course designed to introduce graduate students to basic principles of cartography and select analytical techniques to incorporate into their thesis/dissertation work. The course is not designed for graduate students with previous course work in geographic information systems (GIS), remote sensing, or cartography. Nor is the course designed to be an overarching introduction to GIS, remote sensing, or cartography. Rather, curriculum

will focus on developing spatial analysis skills, map-making, and spatial database construction. At the conclusion of the class, students will have fundamental knowledge of GIS, be able to produce publishable maps, and create their own geospatial databases. Prerequisites: Graduate student: Masters or Doctoral.

Credit Hours: 3

Recommended: For graduate students with little to no cartography or spatial analysis experience

GEOG 8750: Research Design

Application of scientific methods in geographic research. Critical evaluation of current geographical methodology.

Credit Hours: 3

Prerequisites: Restricted to graduate geography majors graduate or instructor's consent

GEOG 8760: Geographic Thought

Discussion of the historic roots of the discipline, especially the ideas, theories and underlying philosophies that have defined Geography in the past century and a half. Students will also explore the philosophical and theoretical ideas that shape the way geographers approach the study of the world.

Credit Hours: 3

Prerequisites: Instructor's consent

GEOG 8820: Field Geography

Techniques of geographical investigation in the field.

Credit Hours: 3

Prerequisites: restricted to graduate Geography majors or instructor's consent

GEOG 8840: Seminar: Applied Remote Sensing

Applied project in remote sensing. Data selection, image processing, land-use and land-cover change, and quantitative biophysical information extraction from remotely sensed data.

Credit Hours: 3

Prerequisites: GEOG 3830 or instructor's consent

GEOG 8902: Topics in Geography-Biological/Physical/Mathematical

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

Credit Hour: 1-3

Prerequisites: instructor's consent
