

BSEd in Secondary Education with Emphasis in Chemistry

Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education & Human Development focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary chemistry. Practical and rewarding clinical training in schools and agencies begins sophomore year and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Chemistry provides you with experience in the methods of teaching chemistry and supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional chemistry educator.

Major Program Requirements

Students must complete all university (<https://catalog.missouri.edu/academicdegree/requirements/universityrequirements/>), general education (<https://catalog.missouri.edu/academicdegree/requirements/generaleducationrequirements/>), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education & Human Development are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

Early Experiences

LTC 1100 or SPC_ED 1100	Orientation (Recommended) Orientation: Special Education	1
ESC_PS 2010 or H_D_FS 3430	Inquiry Into Learning I Adolescence and Young Adulthood	3
LTC 2040 or LTC 2040H	Inquiring into Schools, Community and Society I Inquiring into Schools, Community and Society I - Honors	3
LTC 2044	Early Field Experience for Teacher Education	2

Educational Technology (minimum 2 credit hours) 2

IS_LT 2467	Inquiry into Empowering Learners with Technology (IS_LT 2467 3 credit hours, IS_LT 2300 1 credit hour)	1-3
or IS_LT 2300	Inquiry into Transforming Learning with Technology	
Choose one course		
IS_LT 2305	Blended Learning in the K12 Classroom	1
IS_LT 2310	Technologies for Game-Inspired Teaching and Learning	1
IS_LT 2315	Advancing Equity in K12 Classrooms Through Artificial Intelligence	1
IS_LT 4099	Making and Education	2
IS_LT 4310	Seminar in Information Science and Learning Technologies (Topic: Accessible Learning and Information Environments)	2
IS_LT 4355	Web Design and Development	3
IS_LT 4361	Introduction to Digital Media	3
IS_LT 4373	Exploring Moodle	1
IS_LT 4374	Exploring Canvas	1
IS_LT 4386	Microlearning	1
Mid-Level Experiences		
LTC 4631	Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr., Assm., & Teach I	4
LTC 4634	Teaching Middle and Secondary Science I Field	1
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4460	Teaching English to Speakers of Other Languages	3
or LTC 4460H	Teaching English to Speakers of Other Languages - Honors	
LTC 4641	Teaching Middle and Secondary Science II	3
LTC 4644	Teaching Middle and Secondary Science II Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3
Advanced-Level Experiences		
LTC 4651	Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech III	4
LTC 4654	Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld	1
LTC 4050	Classroom Communities: Managing Collaboration for Learning	3
or SPC_ED 4310	Behavioral and Classroom Management	
LTC 4060	Teachers as Leaders: Policy, Ethics, and Advocacy	1
LTC 4971	Internship and Capstone Seminar	12
LTC 4971H	Internship and Capstone Seminar - Honors (Honors students can choose to enroll in 6 credit hours of LTC 4971H and 6 credit hours of LTC 4971 to fulfill 12 credit hour requirement for Internship and Capstone Seminar.)	
Content Area		
CHEM 1400 & CHEM 1401	College Chemistry I and College Chemistry I Laboratory	4

or CHEM 1400H & CHEM 1401H	College Chemistry I - Honors and College Chemistry I Laboratory - Honors	
CHEM 1410 & CHEM 1411	College Chemistry II and College Chemistry II Laboratory	4
or CHEM 1410H & CHEM 1411H	College Chemistry II - Honors and College Chemistry II Laboratory - Honors	
CHEM 2030	Survey of Organic Chemistry	3
or CHEM 2100	Organic Chemistry I	
CHEM 2130	Organic Laboratory I	2
or CHEM 2130H	Organic Laboratory I - Honors	
CHEM 3200	Quantitative Methods of Analysis with Lab	4
ENV_SC 3250	Pollutant Fate and Transport	3
or CHEM 4310	Physical Chemistry I	
BIOCHM 1090	Introduction to Biochemistry	3
or BIOCHM 3630	General Biochemistry	
Additional Required Science Courses (12 credit hours minimum, at least 1 course from each area. ENV_SC 1100 required.)		12
Biology		
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
or BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
NAT_R 1070	Ecology and Conservation of Natural Resources	3
Physics		
PHYSCS 1050	Concepts in Cosmology	3
PHYSCS 1200	Everyday Wonders: Explaining How Ordinary Things Work	4
PHYSCS 1210	College Physics I	4-5
or PHYSCS 2750	University Physics I	
or PHYSCS 2750H	University Physics I - Honors	
PHYSCS 2200	Life and the Universe	3
PHYSCS 3200	Physics of Space Explorations	3
Earth Science/Environmental Science		
ENV_SC 1100	Introduction to Environmental Science (Required)	3
ENV_SC 4024	Foundations of Environmental Education	3
GEOL 1050	Planet Earth	3
GEOL 1200	Environmental Geology with Laboratory	4
or GEOL 1200H	Environmental Geology with Laboratory - Honors	
or GEOL 1100	Introduction to the Earth with Laboratory	
or GEOL 1100H	Introduction to the Earth with Laboratory - Honors	

Semester Plan

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

First Year			
Fall	CR	Spring	CR
LTC 1100		1 Educational Technology Course	1
Educational Technology Course		1 ENGLSH 1000	3
MATH 1100		3 Humanities	3

American History or Government	3 CHEM 1400	3
Humanities	3 CHEM 1401	1
Elective	3 Additional Required Science Course: Biology	3-5
		14
		14-16

Second Year

Fall	CR	Spring	CR
LTC 2040 (Fall or Spring)		3 ESC_PS 2010 or H_D_FS 3430 (Fall or Spring)	3
Writing Intensive & Humanities		3 LTC 2044 (Fall or Spring)	2
CHEM 1410		3 Social or Behavioral Science	3
CHEM 1411		1 ENV_SC 1100	3
CHEM 2030 or 2100		3 BIOCHM 1090	3
Elective		3 Elective	3
		16	17

Third Year

Fall	CR	Spring	CR
LTC 4631		4 LTC 4641	3
LTC 4634		1 LTC 4644	1
SPC_ED 4020		3 LTC 4460	3
LTC 4560		3 LTC 4565	3
CHEM 2130		2 CHEM 3200	4
Elective		3 ENV_SC 3250	3
		16	17

Fourth Year

Fall	CR	Spring	CR
LTC 4651		3 LTC 4971	12
LTC 4654		1	
LTC 4050		3	
LTC 4060		1	
Additional Required Science Course: Physics		3-5	
Elective (if needed for 120 credit hour total minimum)		3	
		14-16	12

Total Credits: 120-124