

BACHELOR OF SCIENCE: EARTH AND ENVIRONMENTAL SCIENCE - ENVIRONMENTAL SCIENCE EMPHASIS

University Requirements

General Education

UMKC Essentials is the university-wide curriculum that all undergraduate students will complete. The 30-credit hour program includes a First Year Experience course; three critical thinking courses in the areas of Arts & Humanities, Natural & Physical Sciences, and Social & Behavioral Sciences; a Culture and Diversity course; a Civic & Urban Engagement course; two courses in Written Composition and one course in Oral Communication; and a Math Pathway course. Transfer students entering UMKC will elect from the UMKC Essentials General Education Program or the Missouri Core 42 General Education Curriculum. Academic advisors will meet with incoming transfer students to determine which option best serves the student's educational needs. More information about General Education may be found here: <https://catalog.umkc.edu/undergraduate-academic-regulations-information/general-education-requirements/> (<http://catalog.umkc.edu/undergraduate-academic-regulations-information/general-education-requirements/>)

Constitution Course

Every undergraduate student must take a course covering the United States Constitution and the Missouri State Constitution before graduation. Course options are included in the program requirements section below.

Exit Examinations

Information on exit examinations is available in the Undergraduate Academic Regulations and Information (<http://catalog.umkc.edu/undergraduate-academic-regulations-information/graduation/exitexams/>) section of the catalog.

Missouri Higher Education Civics Achievement Examination

In accordance with Missouri Senate Bill 807 (section 170.013.1), 'any student entering a public institution of higher education for the first time after July 2019 who is pursuing an associate's or bachelor's degree from such institution shall successfully pass an examination on the provisions and principles of American civics with a score of seventy percent or greater as a condition of graduation from such institution'. To satisfy this requirement at UMKC, students access the exam through the Canvas site. This requirement will be listed in the degree audit system as, 'Take State Mandated Missouri Higher Education Civics Achievement Examination', and listed on the transcript as 'Missouri Civics Examination'.

Student Learning Outcomes

Students graduating from this program will:

- Interpret spatial patterns using mapping concepts.
- Describe the components and function of environmental systems.
- Analyze natural phenomena using quantitative data, critical thinking, and problem-solving skills.
- Analyze the complex relationships between humans and the natural environment (Environmental Science Emphasis).

Program Requirements

UMKC Essentials

Code	Title	Credits
First Semester Experience Course (GEFSE)		3
Written Communication:		
ENGLISH 110	Introduction to Academic Prose	3
ENGLISH 225	English II: Intermediate Academic Prose	3
Oral Communication (choose one of the following):		3
COMM-ST 110	Fundamentals of Effective Speaking and Listening	
COMM-ST 140	Introduction to Communication	
COMM-ST 212	Argumentation And Debate (offered via dual credit only)	
COMM-ST 277	Interpersonal Communication	
Math Pathway (satisfied in major requirements below)		
Critical Thinking in Arts & Humanities (GECRT-AH)		3
Critical Thinking in Natural & Physical Sciences (GECRT-SC)		3
Critical Thinking in Social & Behavioral Sciences (GECRT-SS)		3
Culture & Diversity Course (GECDV)		3

Civic & Urban Engagement Course (GECUE)	3
Total Credits	27

Constitution Course Requirement

Section 170.011.1 of the Missouri Revised Statutes, 2015, states that all candidates for a degree issued by a college or university in the state of Missouri must have “satisfactorily passed an examination on the provisions and principles of the Constitution of the United States and of the state of Missouri, and in American history and American institutions.”

Courses at UMKC that satisfy this state requirement are:

Code	Title	Credits
Choose one of the following:		
CJC 364	The Supreme Court And The Criminal Process	3
HISTORY 101	U.S. History to 1877	
HISTORY 102	U.S. History Since 1877	
HONORS 230	Honors American Government	
POL-SCI 210	American Government	
Total Credits		3

There are a few other ways this requirement can be satisfied for students transferring to UMKC:

- Take an equivalent course from the list above at a regionally accredited institution.
- Earn credit for one of the above courses through AP, IB, or CLEP.
- Take a course that directly satisfies the Missouri Constitution Requirement at another Missouri institution.
- Have a previous bachelors degree (or higher) from a regionally accredited institution.
- Have an Associate of Arts degree from a regionally accredited institution.
- Complete the 42 Hour Core at a Missouri institution and have it listed on the official transcript.

Major Requirements

Students must successfully complete the major requirements below with at least 12 hours of the noted upper division (300+) course requirements completed at UMKC.

One writing intensive (WI) course is required for the major.

Code	Title	Credits
Mathematics Coursework		
MATH 110	Precalculus Algebra (satisfies Math Pathway)	3
STAT 235	Elementary Statistics	3
or CJC 303	Introduction to Statistics in Sociology and Criminal Justice	
or SOCIOL 363	Introduction to Statistics in Sociology/Criminal Justice	
Science Coursework		
CHEM 211 & 211L	General Chemistry I and Experimental General Chemistry I	5
CHEM 212R & CHEM 212LR	General Chemistry II and Experimental General Chemistry II	5
Pick one of the two following sequences (total of 8 credits):		
BIOLOGY 108 & 108L	General Biology I and General Biology I Laboratory	8
or MOTRBIOL 100LB	MOTR Essentials in Biology w/ Lab - Botany	
or MOTRBIOL 150LB	MOTR Biology with Lab	
BIOLOGY 109 & 109L	General Biology II and General Biology II Laboratory	8
or MOTRBIOL 100LZ	MOTR Essentials in Biology with Lab	
or MOTRBIOL 150LZ	MOTR Biology w/Lab	
OR		
PHYSICS 210	General Physics I	8
PHYSICS 220	General Physics II	

Earth and Environmental Science Coursework

ENV-SCI 110R & ENV-SCI 110L or GEOLOGY 220 & 220L or MOTRGEOG 100L	Understanding the Earth: Introduction to Environmental Science and Laboratory and Understanding the Earth Laboratory General Geology and General Geology Laboratory MOTR Physical Geography with Lab	5
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Coursework common to all emphasis areas:

GEOG 203	Introduction to Geographic Information Systems	4
GEOLOGY 250L or GEOLOGY 251L	Field Methods in Earth and Environmental Science Field Methods in Earth and Environmental Science: Off-Campus	3
GEOG 215	Weather and Climate	4
ENV-STDY 325	Cultural Perspectives on the Environment	3
GEOG 444	Spatial Data Analysis	4
GEOG 499WI or ENV-STDY 499WI or GEOLOGY 499WI or GEOG 403WI	Geography Seminar Environmental Studies Practicum Geology Seminar History and Philosophy of Geoscience	3

Environmental Science Coursework

ENV-SCI 321	Climate Change Impact Assessment and Policy Response	3
GEOG 360 or GEOLOGY 314	Principles of Biogeography Principles of Geomorphology	4
GEOLOGY 370R	Hydrogeology	3
ENV-SCI 416 or GEOLOGY 472 or GEOLOGY 325	Understanding and Living with Volcanoes Earthquake Geology Sedimentology/Stratigraphy	3

Environmental Science Electives (choose 11 hours from the following): 11

BIOLOGY 305	Marine and Freshwater Biology	
ENV-STDY 450	Ecotoxicology	
GEOLOGY 313	Evolution and the Geologic Record	
GEOG 402	Environmental Remote Sensing and Digital Image Analysis	
GEOG 406	Global Environmental Change	
GEOLOGY 322	Earth Materials	
GEOLOGY 325	Sedimentology/Stratigraphy	
GEOG 448	Satellite Climatology	
ENV-SCI 449	Global Water and Sustainability	

For the pairs listed below, students may only take courses for elective credit if not already taken for major requirements:

GEOG 314 or GEOG 360	Principles of Geomorphology Principles of Biogeography	
GEOLOGY 472 or ENV-SCI 416	Earthquake Geology Understanding and Living with Volcanoes	

Total Credits 74

General Electives

Students must take elective credit hours to meet the minimum credit hour requirement for their degree, including at least 36 credit hours of coursework at the 300-level or above. The minimum required by the university is 120 credit hours, of which at least 30 credit hours must be taken at UMKC, but some degree programs require more.

Code	Title	Credits
General Electives		16

Minimum GPA: 2.0
Total Credit Hours: 120

Tools for Planning and Fulfilling Academic Requirements

UMKC's Major Maps are detailed, semester by semester plans that lead a student to complete all degree requirements within four years. Plans include benchmarks and critical courses by term that assist a student's evaluation of progress and major "fit". In order to ensure that the appropriate courses are taken, students are encouraged to consult with the undergraduate advisor for this major. Please see the tab above to view the major map for this program.

UMKC's Transfer Guides (<https://www.umkc.edu/admissions/transfer-guides.html>) provide detailed guidance on recommended transfer coursework, plans of study, transfer timelines, and transfer contact information. To ensure a seamless transfer experience, students are encouraged to work with both their community college advisor and a UMKC advisor when planning their coursework.

UMKC's PlanMyDegree 'Audit' (<https://www.umkc.edu/registrar/academic-programs/plan-my-degree.html>) degree audit system provides an individual evaluation of all degree requirements (General Education, Degree Specific, Major Specific, etc.) for students' officially recorded (Office of the Registrar) and "what if" exploratory plans of study. This evaluation is used to certify all graduation requirements.

UMKC's PlanMyDegree 'Plans' (<https://www.umkc.edu/registrar/academic-programs/plan-my-degree.html>) degree planning tool enables students to develop a personalized semester by semester plan of study towards completion of degree requirements for student's officially recorded (Office of the Registrar) and "what if" exploratory plans of study. Update and edit your full plan to degree completion each term and confirm accuracy each semester with your Academic Advisor(s).

Major Map

Four Year Graduation Plan - Courses & Critical Benchmarks for First Time College Students:

UMKC's Major Maps are detailed, undergraduate four-year course outlines that inform students on the classes they should take and when to take them. Outlines are updated yearly. Graduate students should visit their program's individual school for program outlines.

The following is a sample course of study. Your path to graduation may vary based on factors such as college credit you earned while in high school, transfer work from other institutions of higher learning, and placement in Mathematics. You are responsible for checking prerequisites to any courses. It is the Student's responsibility to ensure that all program requirements are met. This guide is not a substitute for academic advisement.

First Year

Fall Semester	Credits	Spring Semester	Credits
ENV-SCI 110R & ENV-SCI 110L (or GEOLOGY 220 & 220L) ^{CC}		5 STAT 235, SOCIOL 363, or CJC 303 ^{CC}	3
MATH 110		3 COMM-ST 110 or 277	3
GEFSE 101		3 ENGLISH 110	3
GECRT-SC 101		3 GECRT-SS 101	3
		HISTORY 101, 102, or POL-SCI 210	3
		14	15

Second Year

Fall Semester	Credits	Spring Semester	Credits
GEOG 203 ^{CC}		4 GEOG 215 ^{CC}	4
GEOLOGY 250L		3 ENV-SCI 321	3
CHEM 211 & 211L		5 CHEM 212R & CHEM 212LR	5
ENGLISH 225		3 GECRT-AH 101	3
GECUE 201		3 GECDV 201	3
		18	18

Third Year

Fall Semester	Credits	Spring Semester	Credits
GEOG 360 or 314		4 3XX/4XX Environmental Science Major Elective	3

GEOLOGY 416 or 472	3	3XX/4XX Environmental Science Major Elective	3
ENV-STDY 325	3	3XX/4XX Environmental Science Major Elective	3
PHYSICS 210 or BIOLOGY 108 <i>and</i> BIOLOGY 108L (Complete Physics or Biology 2-semester course sequence)	4	PHYSICS 220 or BIOLOGY 109 <i>and</i> BIOLOGY 109L (Complete Physics or Biology 2-semester course sequence)	4
	14		13

Fourth Year

Fall Semester	Credits	Spring Semester	Credits
GEOG 444		4 ENV-STDY 499WI, GEOG 499WI, GEOLOGY 499WI, or GEOG 403WI	3
GEOLOGY 370R		3 3XX/4XX General Elective	3
3XX/4XX Environmental Science Major Elective		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3	
		16	12

Total Credits: 120

CC Critical Courses provide feedback regarding major fit and help indicate likelihood of successful completion of chosen academic program and degree.

Recommendations to Maintain Progress toward 4-Year Degree Completion

- Completion of the First Semester Experience (FSE) course in first term.
- Early completion of Written Communication, Oral Communication, and Math Pathway requirements.
- Maintain the minimum GPA required for academic Good Standing for your degree program.
- Completion at least 15 credit hours toward degree each regular semester. (*Students may use the summer to ensure completion of 30 hours per academic year or to lighten Fall and Spring course loads.*)
- Enrollment in Critical Courses as listed on the Major Map is recommended in order to maintain timely progress and completion of prerequisite coursework.
- Early and continuous enrollment in Foreign Language through completion of level required for degree program is recommended. (*The Foreign Language placement exam is highly recommended to ensure placement in the correct course level.*)
- Regular consultation with Academic Advisor(s) for program(s) of study is strongly recommended and may be required for some degree programs..

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