

Bachelor of Arts in Geology

Why study geology?

In Geology you get to apply techniques and knowledge from chemistry, physics, biology and math to answer important questions about Earth processes, history and future. Geologists are in demand to evaluate geologic hazards, evaluate natural resources, and understand the environment including water quality and climate change.

The B.A. program (<https://geo.ku.edu/geology-undergraduate-ba/>) allows many free electives for background courses in the sciences or liberal arts. The program permits study of traditional geology (with emphasis on the solid earth, the earth's surface, or environmental geology and natural resources), or environmental geology (with emphasis on water or urban environmental geology).

Undergraduate Admission

Admission to KU

All students applying for admission must send high school and college transcripts to the Office of Admissions. Prospective first-year students should be aware that KU has qualified admission requirements that all new first-year students must meet to be admitted. Consult the Office of Admissions (<http://admissions.ku.edu/>) for application deadlines and specific admission requirements.

Visit the International Support Services (<http://www.iss.ku.edu/>) for information about international admissions.

Students considering transferring to KU may see how their college-level course work will transfer on the Office of the University Registrar (<https://registrar.ku.edu/creditransfer/>) website.

Geology Programs

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Degree requirements may be altered to suit particular needs of a student upon petition to the undergraduate studies committee and in consultation with a geology faculty advisor. Special consideration is given to students with strong backgrounds in supporting sciences and students with superior records who decide to major in geology late in their programs.

First- and Second-Year Preparation

Students interested in geology should see a department advisor as soon as possible. They should enroll in mathematics, chemistry, and English in addition to Introduction to Geology and electives. Students should plan to take GEOL 360 or GEOL 370 in the summer after completing the introductory geology course.

Advising

Developing a strong relationship with a faculty advisor helps students get the most out of their educational programs in the shortest time. Most courses for majors are offered in only one semester each year. Advisors

can guide the student through complexities of the curriculum or into a specialized program.

Requirements for the B.A. Major Geology Major Course Requirements

Code	Title	Hours
Geology Prerequisite or Co-requisite Knowledge		
Majors must complete courses as specified in each of the following areas. Majors are advised to take honors courses when eligible. These hours do not contribute to the minimum number of hours required for the major.		
Calculus I. Satisfied by:		
GEOL 190	Introduction to Quantitative Geoscience (or MATH 115 or MATH 125)	
Foundations of Chemistry I. Satisfied by:		
CHEM 130	General Chemistry I	
Physics. Satisfied by one of the following:		
PHSX 114	College Physics I	
PHSX 211 & PHSX 216	General Physics I and General Physics I Laboratory	
Biology. Satisfied by:		
BIOL 100 & BIOL 102	Principles of Biology and Principles of Biology Laboratory (or higher level biology course)	
Information Technology. Satisfied by:		
EECS 138	Introduction to Computing: _____	
Geology Core Knowledge and Skills		
Majors must complete the following core courses:		
Introduction to Geology. Satisfied by:		
GEOL 101	The Way The Earth Works	3
Geology Fundamentals Laboratory. Satisfied by:		
GEOL 103	Geology Fundamentals Laboratory	2
Mineralogy and Structure of the Earth. Satisfied by:		
GEOL 311	Mineralogy and Structure of the Earth	3
Sedimentology and Stratigraphy. Satisfied by:		
GEOL 331	Sedimentology and Stratigraphy	4
Field Investigation. Satisfied by:		
GEOL 360 or GEOL 370	Field Investigation Study Abroad in Greece: Natural Environment and Civilizations	2-3
Paleontology. Satisfied by:		
GEOL 521	Paleontology	3
Structural Geology. Satisfied by:		
GEOL 562	Structural Geology	4
Capstone Course		
Introductory Field Geology. Satisfied by:		
GEOL 560	Introductory Field Geology	3
Geology Required Electives or Concentration Coursework		
Majors must complete a minimum of 15 hours in geology or related courses. Several possible tracks of upper-level course work are given below.		15
Total Hours		39-40

No Concentration

Concentrate on traditional geology with emphasis on the solid earth and the earth's interior, earth surface processes, or environmental geology and natural resources. Students must complete at least one course from each of the three categories listed below: Rocks; Water and Climate; Life

Code	Title	Hours
Rocks		
GEOL 115	Gemstones	3
GEOL 312	Mineral Structures and Equilibria Laboratory	1
GEOL 501	Simple Error Analysis for Earth Scientists	3
GEOL 502	Linear Algebra for Earth Scientists	3
GEOL 503	Numerical Methods in the Earth Sciences	2-3
GEOL 512	Igneous and Metamorphic Petrology	3
GEOL 513	Petrology Laboratory	1
GEOL 536	Geological Log Analysis	1
GEOL 538	Basin Analysis	3
GEOL 539	Sequence Stratigraphy	3
GEOL 572	Geophysics	3
Water & Climate		
GEOL 142	Oceanography	4
GEOL 151	Environmental Geology	3
GEOL 301	Introduction to Oceanography	3
GEOL 541	Geomorphology	4
GEOL 542	Energy and Society	3
GEOL 543	Environmental Ethics: A View from the National Parks	3
GEOL 552	Introduction to Hydrogeology	3
GEOL 554	Contaminants in Groundwater	3
GEOL 555	Climate Science	3
EVRN 332	Environmental Law (prerequisite: EVRN 148)	3
Life		
GEOL 304	Historical Geology	3
GEOL 391	Special Studies in Geology	1-6
GEOL 523	Paleontology Laboratory	1
GEOL 591	Topics in Geology: _____	1-5

Environmental Geology Concentration

Concentrate on environmental geology with emphasis on water and the environment or urban environmental geology. Students must complete at least one course from each of the following two categories: Water, Geology and the Environment; Urban Environmental Geology

Code	Title	Hours
Water, Geology, and the Environment		
GEOL 142	Oceanography	4
GEOL 151	Environmental Geology	3
GEOL 391	Special Studies in Geology	1-6
GEOL 541	Geomorphology	4
GEOL 552	Introduction to Hydrogeology	3
CE 477	Introduction to Environmental Engineering and Science	3
BIOL 661	Ecology of Rivers and Lakes	3
Urban Environmental Geology		

GEOL 151	Environmental Geology	3
ATMO 525	Air Pollution Meteorology	3
CE 477	Introduction to Environmental Engineering and Science	3
GEOG 304	Environmental Conservation	3

Other Elective Courses

BIOL 414	Principles of Ecology	3
GEOG 558	Spatial Data Analysis	4

Major Hours & Major GPA

While completing all required courses, majors must also meet each of the following hour and grade-point average minimum standards:

Major Hours

Satisfied by 39-40 hours of major courses.

Major Hours in Residence

Satisfied by a minimum of 15 hours of KU resident credit in the major.

Major Junior/Senior Hours

Satisfied by a minimum of 12 hours from junior/senior courses (300+) in the major.

Major Junior/Senior Graduation GPA

Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F's and repeated courses. See the Semester/Cumulative GPA Calculator (<https://sis.ku.edu/gpa-calculator/>).

Sample 4-year plans for the BA degree in Geology with the following concentrations can be found here: BA in Geology (<https://catalog.ku.edu/liberal-arts-sciences/geology/ba/general-geology/>) (no concentration) and concentration in Environmental Geology (<https://catalog.ku.edu/liberal-arts-sciences/geology/ba/environmental-geology/>), or by using the left-side navigation.

At the completion of this program, students will be able to:

- Understand the hazards posed by geologic processes for human lives and communities as well as the impact of humans on the Earth System. (Hazards and Human Impacts)
- Apply concepts from physics, chemistry, biology, mathematics, and spatial reasoning to understand Earth's systems, cycles, and evolution. (Interdisciplinary Thinking)
- Formulate hypotheses, qualify results by stating assumptions and caveats, and test hypotheses using modern techniques. (Geologic Inquiry)
- Critically evaluate Earth Science literature and spatial data (e.g., maps, remote sensing, 3D models). (Evaluating Geologic Data)
- Present, formally and extemporaneously, geological information in written form, graphically, and orally. (Communication Skills)

Departmental Honors

Pursuit of departmental honors in Geology is by invitation from the Department of Geology honors coordinator.

Requirements include:

3.50 or higher KU geology-courses GPA at graduation.
Completion of at least 2 credit hours of GEOL 399.

Completion and successful defense of an honor's thesis.

Additional requirements and more information may be obtained from the Department of Geology honors coordinator and web site.