

Geoscience, B.S.

Requirements

The Bachelor of Science with a major in geoscience requires a minimum of 120 s.h., including at least 76 s.h. of work for the major (at least 45 s.h. in earth and environmental sciences courses and at least 31 s.h. in supporting disciplines). Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences GE CLAS Core. Transfer students must complete a minimum of 15 s.h. of coursework in the Department of Earth and Environmental Sciences.

The department recommends that students fulfill the GE CLAS Core World Languages requirement with French, German, Russian, or Spanish and the Social Sciences requirement with approved coursework in economics, geography, or anthropology.

The B.S. with a major in geoscience requires the following coursework.

Code	Title	Hours
	Earth and Environmental Sciences Courses	45-50
	Mathematics Courses	11-12
	Chemistry Courses	8
	Physics Courses	8
	Biology Course	4
	Independent Research Option	

Total Hours **76-82**

Earth and Environmental Sciences

Code	Title	Hours
One of these:		
EES:1030	Introduction to Earth Science	4
EES:1050	Introduction to Geology (preferred)	4
All of these:		
EES:1040	Evolution and the History of Life	4
EES:2200	Historical Geology	4
EES:2410	Mineralogy	4
EES:2831	Geologic Field Methods	3
EES:3300	Sedimentary Geology	4
EES:3500	Igneous and Metamorphic Petrology	4
EES:3840	Structural Geology	4
EES:4832	Geologic Field Analysis	3
One of these:		
EES:3210	Principles of Paleontology	3
EES:4490	Elements of Geochemistry	3
EES:4630	Hydrogeology	4
EES:4790	Applied Environmental Geology	3
EES:4800	Global Geophysics	3
And:		

Three earth and environmental sciences 8-12
electives numbered EES:3000 or above, except for the field trip courses EES:3001, EES:3160, or EES:4001; see "Recommended Electives" below

Mathematics

Code	Title	Hours
One of these:		
MATH:1550	Engineering Mathematics I: Single Variable Calculus	4
MATH:1850	Calculus I	4
One of these:		
MATH:1560	Engineering Mathematics II: Multivariable Calculus	4
MATH:1860	Calculus II	4
And:		
An additional mathematics course numbered MATH:2000 or above, or a computer science course numbered CS:1110 or above, or a statistics course numbered STAT:2010 or above, or EES:3100, or EES:4300 (if the EES courses are not used to satisfy the earth and environmental sciences electives requirement)		3-4

Chemistry

Students must complete at least 8 s.h. of college-level chemistry, including the following sequence or equivalent courses or more advanced courses. Chemistry courses numbered below CHEM:1110 Principles of Chemistry I do not count toward this requirement.

Code	Title	Hours
CHEM:1110 & CHEM:1120	Principles of Chemistry I-II	8

Physics

Students must complete at least 8 s.h. of college-level physics, as follows. Physics courses numbered below PHYS:1511 College Physics I do not count toward this requirement.

Code	Title	Hours
One of these sequences:		
PHYS:1511- PHYS:1512	College Physics I-II	8
PHYS:1611- PHYS:1612	Introductory Physics I-II	8

Biology

Students must complete at least one biology course that includes a laboratory (4 s.h.). Students with an interest in paleontology are encouraged to take BIOL:1411 Foundations of Biology and BIOL:1412 Diversity of Form and Function.

Code	Title	Hours
One biology course (includes a lab)		4

Recommended Electives

All students should take elective courses from the following groups in order to broaden their undergraduate experience and prepare themselves for graduate study or professional employment. Students who have clear career goals are advised to take three or more elective courses from the group that fits their needs most closely. Students also may seek a

broad education in geoscience by choosing elective courses from a number of groups.

Quaternary Geology

Code	Title	Hours
EES:3020	Earth Surface Processes	3
EES:3060	Ecology and Natural History of Iowa	3
EES:3100	Earth and Planetary Remote Sensing	4
EES:3360	Soil Genesis and Geomorphology	3
EES:3380	Fluvial Geomorphology	3
EES:4490	Elements of Geochemistry	3
EES:4520	Isotope Geochemistry	3
EES:4630	Hydrogeology	4
EES:4640	Contaminant Hydrogeology	3
EES:4720	Paleoclimatology	3
EES:4790	Applied Environmental Geology	3

Environmental Geology

Code	Title	Hours
EES:3060	Ecology and Natural History of Iowa	3
EES:3070	Marine Ecosystems and Conservation	3
EES:3080	Introduction to Oceanography	2
EES:3100	Earth and Planetary Remote Sensing	4
EES:3380	Fluvial Geomorphology	3
EES:3390	Integrated Watershed Analysis	3
EES:4490	Elements of Geochemistry	3
EES:4520	Isotope Geochemistry	3
EES:4630	Hydrogeology	4
EES:4640	Contaminant Hydrogeology	3
EES:4680	Field Methods in Hydrologic Science	3
EES:4790	Applied Environmental Geology	3
EES:4800	Global Geophysics	3

Geochemistry

Code	Title	Hours
EES:4410	Analytical Methods Seminar	2
EES:4490	Elements of Geochemistry	3
EES:4520	Isotope Geochemistry	3
EES:4630	Hydrogeology	4
EES:4640	Contaminant Hydrogeology	3
EES:4820	Tectonics and Basin Analysis	3

Tectonics/Petrology

Code	Title	Hours
EES:4410	Analytical Methods Seminar	2
EES:4490	Elements of Geochemistry	3
EES:4520	Isotope Geochemistry	3
EES:4750	Mineral and Petroleum Exploration Geology	3

EES:4800	Global Geophysics	3
EES:4820	Tectonics and Basin Analysis	3

Sedimentary Geology

Code	Title	Hours
EES:3080	Introduction to Oceanography	2
EES:3300	Sedimentary Geology	4
EES:3380	Fluvial Geomorphology	3
EES:3770	Global Stratigraphy	3
EES:4490	Elements of Geochemistry	3
EES:4520	Isotope Geochemistry	3
EES:4750	Mineral and Petroleum Exploration Geology	3
EES:4820	Tectonics and Basin Analysis	3

Paleobiology

Code	Title	Hours
EES:3070	Marine Ecosystems and Conservation	3
EES:3080	Introduction to Oceanography	2
EES:3210	Principles of Paleontology	3
EES:3220	Evolution of the Vertebrates	4
EES:3300	Sedimentary Geology	4
EES:3770	Global Stratigraphy	3
EES:4490	Elements of Geochemistry	3
EES:4520	Isotope Geochemistry	3
EES:4820	Tectonics and Basin Analysis	3

Independent Research Option

A junior or senior who is ready to pursue independent research for credit in geoscience may assist a faculty member or graduate student with a current research project EES:2190 Directed Study or may initiate a small-scale project involving a combination of field, laboratory, and library investigation in EES:3190 Directed Study. Independent study is encouraged and may lead to an honors thesis in EES:4999 Honors Thesis in Geoscience or a senior thesis in EES:4990 Senior Thesis in Geoscience that may be published subsequently.

Teacher Licensure

Students interested in teaching in elementary and/or secondary schools should seek admission to the Teacher Education Program (TEP) in the College of Education.

To qualify for licensure in secondary teaching, students in the TEP complete a degree in education as well as a related College of Liberal Arts and Sciences degree. See Apply on the College of Education website for details on requirements and deadlines for applying to the College of Education and about TEP choices of majors leading to licensure.