Earth and Environmental Sciences, BS

Earth and environmental sciences majors study the geologic, hydrologic, atmospheric, and biotic systems that make up the dynamic Earth, with an emphasis on local and global interactions between these systems in the present and over deep time. The major comprises three tracks: earth and planetary science, environmental bioscience, and environmental geoscience. Within these tracks, students examine planetary and ecological processes emphasizing how planets, their environments, and life have evolved and continue to evolve; how recent human actions interact with surface processes to support or distress living organisms, air, and water; how altered ecosystem structure and function impacts population and community dynamics across diverse spatial and temporal scales; and how past and present changes within the Earth's systems, both big and small, may inform expectations around, and solutions to, future change. The integrated biological, chemical, physical, and geological components of the degree program offer students flexibility and exposure to the entire geoscience and environmental discipline while at the university and prepare them for either employment directly following graduation or continuation to graduate school.

Learning Outcomes

Graduates will:

- understand planetary and ecosystem processes across diverse spatial and temporal scales;
- understand past and present interactions within the Earth-life system, including human interactions and interventions;
- develop the ability to collect and interpret environmental field data within a focused sub-discipline of earth and environmental sciences; and
- develop a quantitative, analytical skill set to integrate the diverse array of earth sciences and related disciplines.

Requirements

The Bachelor of Science with a major in earth and environmental sciences requires a minimum of 120 s.h., including 72–82 s.h. of work for the major, depending on the student's chosen track (earth and planetary science, environmental bioscience, or environmental geoscience). 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 must also complete the College of Liberal Arts and Sciences GE CLAS Core. Transfer students must complete a minimum of 15 s.h. of School of Earth, Environment, and Sustainability coursework in the major.

In planning coursework, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: students earning a BS may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the coursework is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average, but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students who are earning two majors from the same department (e.g., a BS in earth and environmental sciences and a BS in geographical and sustainability sciences), two degrees from the same department (e.g., a BS in earth and environmental sciences and a BA in environmental policy and planning), or a major and a minor from the same department (e.g., a BS in earth and environmental sciences and a minor in environmental policy and planning) may apply more than 56 s.h. from their home department toward their degree, but they must earn at least 56 s.h. of credit in courses outside their home department in order to graduate.

The BS with a major in earth and environmental sciences requires the following coursework.

Requirements	Hours
Foundation Courses	27
Track Courses	27-46
Electives	9-18

Foundation Courses

Course #	Title	Hours
All of these:		
SEES:1070	Contemporary Environmental Issues	3
SEES:1085	Fundamentals of Environmental Science	4
SEES:2010	Interdisciplinary Environmental Seminar	1
SEES:2050	Foundations of GIS	4
CHEM:1110	Principles of Chemistry I	4
CHEM:1120	Principles of Chemistry II	4
MATH:1850	Calculus I	4
One of these:		
SEES:4100	Computation in the Earth and Environment	3
CS:1110	Introduction to Computer Science	3
STAT:2010	Statistical Methods and Computing	3
STAT:3510/ IGPI:3510	Biostatistics	3

Tracks

Students must complete one of three tracks: earth and planetary science, environmental bioscience, or environmental geoscience. Courses taken to complete a track requirement may not also be used to satisfy the electives requirement.

Earth and Planetary Science Track

Students in the earth and planetary science track must complete 41–42 s.h. in earth and planetary science track courses, a 3–4 s.h. allied math or science course, and 9 s.h. in elective courses.

Earth and Planetary Science Track Courses

Course #	Title	Hours
All of these:		
SEES:1040	Evolution and the History of Life (with laboratory)	4
SEES:1050	Introduction to Geology	4
SEES:2200	Historical Geology	4
SEES:2410	Mineralogy	4
SEES:2831	Earth and Environmental Field Methods	3
SEES:3330	Sedimentary Geology	4
SEES:3510	Igneous and Metamorphic Petrology	4
SEES:3840	Structural Geology	4
SEES:4832	Geologic Field Analysis	3
PHYS:1511	College Physics I	4
or PHYS:1611	Introductory Physics I	
One of these:		
SEES:3210	Principles of Paleontology	3
SEES:3608	Planetary Geology	3
SEES:4490	Elements of Geochemistry	3
SEES:4630	Hydrogeology	4
SEES:4790	Applied Environmental Geology	3
SEES:4800	Environmental Geophysics	3

Allied Math or Science Course

Course #	Title	Hours
One of these:		
a biology course (prefix BIOL)		4
a chemistry course (prefix CHEM) numbered 1120 or above		3-4
a mathematics course (prefix MATH) numbered 1860 or above		3-4
a statistics course (prefix STAT) numbered 2000 or above		3-4
SEES:4100	Computation in the Earth and Environment	3
PHYS:1512	College Physics II	4
PHYS:1612	Introductory Physics II	4

Students with an interest in paleontology are encouraged to take BIOL:1411 Foundations of Biology and BIOL:1412 Diversity of Form and Function.

Earth and Planetary Science Track Electives

Students in this track must complete an additional 9 s.h. in elective courses. These 9 s.h. of elective courses must be in the School of Earth, Environment, and Sustainability (prefix SEES) and numbered 3000 or above. Refer to the "Electives" section that follows for information about the electives categories and their corresponding courses.

Students may not use any course to satisfy more than one requirement.

Environmental Bioscience Track

Students in the environmental bioscience track must complete 27–29 s.h. in environmental bioscience track courses and 18 s.h. in elective courses.

Environmental Bioscience Track Courses

Course #	Title	Hours
All of these:		
SEES:2673/ BIOL:2673	Ecology	3
SEES:3020	Earth Surface Processes	3
SEES:3315	Ecosystem Ecology	4
BIOL:1411	Foundations of Biology	4
BIOL:1412	Diversity of Form and Function	4
One of these:		
SEES:2374/ BIOL:2374	Biogeography	3
SEES:2950	Environmental Conservation	4
SEES:3070	Marine Ecosystems and Conservation	3
One of these:		
SEES:2310	Introduction to Climatology	3
SEES:3320	Earth's Climate System	3
One of these:		
SEES:3220	Evolution of the Vertebrates	3
BIOL:1261	Introduction to Botany	4
BIOL:2246	Entomology Lab	4
An approved organismal course at the Iowa Lakeside Laboratory (prefix IALL)		3-4

Environmental Bioscience Track Electives

Students in this track must complete at least 18 s.h. in elective courses, including at least one course from the field study category and one course from each of three other categories. At least 9 s.h. of the elective courses must be numbered 3000 or above. Refer to the "Electives" section that follows for information about the electives categories and their corresponding courses.

Students may not use any course to satisfy more than one requirement.

Environmental Geoscience Track

Students in the environmental geoscience track must complete 42 s.h. in environmental geoscience track courses and 9 s.h. in elective courses.

Environmental Geoscience Track Courses

Course #	Title	Hours
All of these:		
SEES:1050	Introduction to Geology	4
SEES:2673/ BIOL:2673	Ecology	3
SEES:3020	Earth Surface Processes	3
SEES:3330	Sedimentary Geology	4
SEES:3360	Soil Genesis and Geomorphology	3
SEES:4630	Hydrogeology	4
SEES:4790	Applied Environmental Geology	3
SEES:4800	Environmental Geophysics	3
MATH:1860	Calculus II	4
One of these sequences:		
PHYS:1511 & PHYS:1512	College Physics I and College Physics II	8

PHYS:1611 & PHYS:1612	Introductory Physics I and Introductory Physics II	8
One of these:		
SEES:2310	Introduction to Climatology	3
SEES:3320	Earth's Climate System	3

Environmental Geoscience Track Electives

Students in this track must complete at least 9 s.h. in elective courses numbered 3000 or above, including at least one course from the field study category and one from each of two other categories. Refer to the "Electives" section that follows for information about the electives categories and their corresponding courses.

Students may not use any course to satisfy more than one requirement.

Electives

Elective courses each fall into one of five categories: chemistry, earth systems, ecology and the biosphere, field study, or research and internships. All students must complete at least 3 s.h. from the field study category except for students in the earth and planetary science track. Students in the environmental bioscience track must select courses from at least three additional elective categories. Students in the environmental geoscience track must select courses from at least two additional elective categories.

Field Study Electives

Course #	Title	Hours
At least 3 s.h. from these:		
SEES:1179 & SEES:1180	Geology of National Parks: Preparation and Planning and Geology of National Parks: Field Trip	3
SEES:2001	Second-Year Field Trip for Earth and Environmental Sciences	1
SEES:2831	Earth and Environmental Field Methods	3
SEES:3001	Third-Year Field Trip for Earth and Environmental Sciences	1
SEES:3095	Field Ecology	4
SEES:3096	Winter Ecology	2
SEES:3097	Introduction to Bird Study	2
SEES:3150	Sustainability Project	1-4
SEES:3160	Field Trip	1-3
SEES:3230	Prairie Restoration	3
SEES:4001	Fourth-Year Field Trip for Earth and Environmental Sciences	1
SEES:4010	Field Methods in Physical Geography	3
SEES:4680	Field Methods in Hydrologic Science	3
SEES:4832	Geologic Field Analysis	3
Approved Iowa Lakeside Laboratory courses (prefix IALL)		1-4

Chemistry Electives

Course #	Title	Hours
SEES:4110	Global Biogeochemical Cycles	3
SEES:4490	Elements of Geochemistry	3
CEE:4150/CBE:4420	Environmental Chemistry	3
CEE:4158/ OEH:4920	Solid and Hazardous Wastes	3
CEE:5440	Foundations of Environmental Chemistry and Microbiology	3
CHEM:2021	Fundamentals of Chemical Measurements	3
CHEM:2210	Organic Chemistry I	3
CHEM:3110	Equilibria and Electrochemistry	3
CHEM:3120	Spectroscopy and Separations	3
CHEM:3430	Analytical Measurements	3

Earth Systems Electives

Course #	Title	Hours
SEES:1050	Introduction to Geology	4
SEES:2200	Historical Geology	4
SEES:2310	Introduction to Climatology	3
SEES:2410	Mineralogy	4
SEES:3020	Earth Surface Processes	3
SEES:3080	Oceanography	3
SEES:3320	Earth's Climate System	3
SEES:3330	Sedimentary Geology	4
SEES:3360	Soil Genesis and Geomorphology	3
SEES:3380/ CEE:3328	Fluvial Geomorphology	3
SEES:3390	Integrated Watershed Analysis	3
SEES:3500/ IGPI:3500	Introduction to Environmental Remote Sensing	3
SEES:3510	Igneous and Metamorphic Petrology	4
SEES:3570	Light Detection and Ranging (LiDAR): Principles and Applications	3
SEES:3608	Planetary Geology	3
SEES:3840	Structural Geology	4
SEES:4310	Climate Change	3
SEES:4500/ IGPI:4500	Advanced Remote Sensing	4
SEES:4630	Hydrogeology	4
SEES:4640	Contaminant Hydrogeology	3
SEES:4720	Paleoclimatology	3
SEES:4760	Mineral and Petroleum Exploration Geology	3
SEES:4780	Global Stratigraphy	3
SEES:4790	Applied Environmental Geology	3
SEES:4800	Environmental Geophysics	3
SEES:4820	Tectonics and Basin Analysis	3

Ecology and the Biosphere Electives

Course #	Title	Hours
SEES:2374/ BIOL:2374	Biogeography	3
SEES:2950	Environmental Conservation	4
SEES:3070	Marine Ecosystems and Conservation	3
SEES:3210	Principles of Paleontology	3
SEES:3220	Evolution of the Vertebrates	3
SEES:3315	Ecosystem Ecology	4
SEES:3350	Urban Ecology	3
SEES:4470	Ecological Climatology	3
SEES:4600	Biogeography, Ecology, and Conservation of Mammals	4
BIOL:1261	Introduction to Botany	4
BIOL:2246	Entomology Lab	4
BIOL:2663	Plant Response to the Environment	3
BIOL:3244	Animal Behavior	3

Research and Internship Electives

Course #	Title	Hours
SEES:3150	Sustainability Project	1-3
SEES:3190	Undergraduate Directed Study	1-3
SEES:3992	Undergraduate Research	1-3
SEES:4995	Honors Thesis	arr.
BIOL:3994	Introduction to Research	1-3
BIOL:4999	Honors Research in Biology	arr.
CCP:1201	Academic Internship	1-3

Honors

Graduating with departmental honors and graduating with university honors are two opportunities available to high-achieving undergraduate students, each with specific and distinct requirements. Some students pursue both options while others pursue one or the other.

Honors in the Major

Within the College of Liberal Arts and Sciences, each major develops its own requirements to achieve honors in the major. In order to graduate with honors in the major, students in the School of Earth, Environment, and Sustainability (SEES) pursue study beyond the typical undergraduate level. They work under the direction of a faculty member to conduct original research and then prepare and present a written honors thesis based on their work.

Potential honors students must complete an honors thesis contract with their advisor and obtain approval from the department's undergraduate committee by the first semester of their senior year or earlier. They are also required to register for SEES:4995 Honors Thesis as they work to complete their thesis, where they must earn a grade of B or higher. Additionally, SEES honors students must maintain a cumulative grade-point average of at least 3.33 in all University of Iowa and SEES coursework.

University of Iowa Honors Program

In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the university's honors program.

Membership in the UI Honors Program is not required to earn honors in the earth and environmental sciences major.

Career Advancement

Graduates with degrees in earth and environmental sciences find jobs and careers with a variety of public, private, and nonprofit organizations with roles ranging from research to outreach. Possible careers include environmental science consultant, state or U.S. Geological Survey scientist, state regulatory agency scientist, Environmental Protection Agency scientist, National Resource Conservation Service scientist, academic researcher (requires graduate school), environmental education teacher, K–12 education teacher, land manager or steward, museum curator, natural hazard assessment and mitigation scientist or manager, renewable energy scientist or manager, science writer and communication specialist, National Park Service guide, resource exploration and extraction scientist, nature facility scientist and program manager, and restoration designer and manager.

Academic Plans

Sample Plans of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, visit MyUI.

Earth and Environmental Sciences, BS

- Earth and Planetary Science Track
- Environmental Bioscience Track
- Environmental Geoscience Track

Earth and Planetary Science Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
SEES:1050	Introduction to Geology [b]	4
SEES:1085	Fundamentals of Environmental Science [b]	4
ENGL:1200 or RHET:1030	Interpreting Literature or Rhetoric: Writing and Communication	3 - 4
CSI:1600	Success at Iowa	1
	Hours	**16-17**
Spring		
CHEM:1120	Principles of Chemistry II [b]	4

SEES:1040	Evolution and the History of Life [b]	4
SEES:2200	Historical Geology	4
ENGL:1200 or RHET:1030	Interpreting Literature or Rhetoric: Writing and Communication	3 - 4
	Hours	**15-16**
Second Year		
Fall		
MATH:1850	Calculus I [b]	4
SEES:2010	Interdisciplinary Environmental Seminar	1
SEES:2410	Mineralogy	4
GE CLAS Core: Social Sciences [c]		3
GE CLAS Core: World Languages First Level Proficiency or elective course [d]		4 - 5
	Hours	**16-17**
Spring		
SEES:1070	Contemporary Environmental Issues [b]	3
SEES:3510	Igneous and Metamorphic Petrology	4
SEES:2831	Earth and Environmental Field Methods	3
Major Elective: earth and planetary science track elective course (prefix SEES, numbered 3000 or above)		3 - 4
GE CLAS Core: World Languages Second Level Proficiency or elective course [d]		4 - 5
	Hours	**17-19**
Third Year		
Fall		
PHYS:1611 or PHYS:1511	Introductory Physics I [b] or College Physics I	4
SEES:3330	Sedimentary Geology	4
GE CLAS Core: Understanding Cultural Perspectives [c]		3
GE CLAS Core: World Languages Third Level Proficiency or elective course [d]		4 - 5
	Hours	**15-16**
Spring		
SEES:2050	Foundations of GIS	4
SEES:3840	Structural Geology	4
GE CLAS Core: Historical Perspectives [c]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [c]		4 - 5
	Hours	**15-16**
Summer		
SEES:4832	Geologic Field Analysis	3
	Hours	**3**
Fourth Year		
Fall		
Major Elective: computer science/statistics course [e]		3
Major Elective: "one of these" earth and planetary track course [f]		3 - 4
Major Elective: earth and planetary science track elective course (prefix SEES, numbered 3000 or above) [g]		3 - 4
GE CLAS Core: Literary, Visual, and Performing Arts [c]		3
Elective course [h]		3
	Hours	**15-17**
Spring		
Major Elective: allied math or science course [i]		3 - 4
Major Elective: earth and planetary science track elective course (prefix SEES, numbered 3000 or above) [g]		3 - 4
GE CLAS Core: Values and Society [c]		3
Elective course [h]		3
Elective course [h]		2
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [j]		
	Hours	**14-16**
	Total Hours	**126-137**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b Fulfills a major requirement and may fulfill a GE requirement.

c GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

d Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

e Select one course from SEES:4100, CS:1110, STAT:2010, STAT:3510.

f Select one course from SEES: 3210, SEES:3608, SEES:4490, SEES:4630, SEES:4790, SEES:4800

g Students must complete at least 9 s.h. in elective courses from the School of Earth, Environmental, and Sustainability (prefix SEES) and numbered 3000 or above. See the General Catalog for list of approved courses.

h Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

i See the General Catalog for list of approved course options.

j Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.

Environmental Bioscience Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
	Hours	**0**

First Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
SEES:1085	Fundamentals of Environmental Science [b]	4
SEES:1070	Contemporary Environmental Issues [b]	3
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
CSI:1600	Success at Iowa	1
	Hours	**15-16**
Spring		
CHEM:1120	Principles of Chemistry II [b]	4
MATH:1850	Calculus I [b]	4
ENGL:1200 or RHET:1030	Interpreting Literature or Rhetoric: Writing and Communication	3 - 4
GE CLAS Core: Understanding Cultural Perspectives [c]		3
Elective course [d]		2
	Hours	**16-17**
Second Year		
Fall		
BIOL:1411	Foundations of Biology [b]	4
SEES:2010	Interdisciplinary Environmental Seminar	1
SEES:3020	Earth Surface Processes	3
GE CLAS Core: World Languages First Level Proficiency or elective course [e]		4 - 5
Elective course [d]		3
	Hours	**15-16**
Spring		
BIOL:1412	Diversity of Form and Function [b]	4
Major Elective: environmental bioscience track elective course [f]		3 - 4
GE CLAS Core: Social Sciences [c]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [e]		4 - 5
Elective course [d]		1
	Hours	**15-17**
Third Year		
Fall		
SEES:3070 or SEES:2374 or SEES:2950	Marine Ecosystems and Conservation or Biogeography or Environmental Conservation	3 - 4
BIOL:1261 or SEES:3220 or BIOL:2246	Introduction to Botany [g] or Evolution of the Vertebrates or Entomology Lab	3 - 4
Major Elective: computer science/statistics course [h]		3
GE CLAS Core: Historical Perspectives [c]		3
GE CLAS Core: World Languages Third Level Proficiency or elective course [e]		4 - 5
	Hours	**16-19**
Spring		
SEES:2050	Foundations of GIS	4
SEES:2310 or SEES:3320	Introduction to Climatology or Earth's Climate System	3
SEES:2673	Ecology	3
GE CLAS Core: Literary, Visual, and Performing Arts [c]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [e]		4 - 5
	Hours	**17-18**
Fourth Year		
Fall		
SEES:3315	Ecosystem Ecology	4
Major Elective: environmental bioscience track elective course (numbered 3000 or above) [f]		3 - 4
Major Elective: environmental bioscience track elective course [f]		3 - 4
GE CLAS Core: Values and Society [c]		3
Elective course [d]		3
	Hours	**16-18**
Spring		
Major Elective: environmental bioscience track elective course (numbered 3000 or above) [f]		3 - 4
Major Elective: environmental bioscience track elective course (numbered 3000 or above) [f]		3 - 4
Major Elective: environmental bioscience track elective course [f]		3 - 4
Elective course [d]		3
Elective course [d]		2
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [i]		
	Hours	**14-17**
	Total Hours	**124-138**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b Fulfills a major requirement and may fulfill a GE requirement.

c GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

d Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

e Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

f Students must complete at least 18 s.h. in elective courses, including at least one course from the field study category and one course from each of three other categories; at least 9 s.h. must be numbered 3000 or above. See the General Catalog for list of approved courses.

g May also complete an approved organismal course (3-4 s.h.) at the Iowa Lakeside Laboratory (prefix IALL).

h Select one course from SEES:4100, CS:1110, STAT:2010, STAT:3510.

i Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.

Environmental Geoscience Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
MATH:1850	Calculus I [b]	4
SEES:1050	Introduction to Geology [b]	4
SEES:1070	Contemporary Environmental Issues [b]	3
ENGL:1200 or RHET:1030	Interpreting Literature or Rhetoric: Writing and Communication	3 - 4
CSI:1600	Success at Iowa	1
	Hours	**15-16**
Spring		
MATH:1860	Calculus II	4
SEES:1085	Fundamentals of Environmental Science [b]	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
GE CLAS Core: Understanding Cultural Perspectives [c]		3
Elective course [d]		2
	Hours	**16-17**
Second Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
SEES:2010	Interdisciplinary Environmental Seminar	1
SEES:3020	Earth Surface Processes	3
GE CLAS Core: Social Sciences [c]		3
GE CLAS Core: World Languages First Level Proficiency or elective course [e]		4 - 5
	Hours	**15-16**
Spring		
CHEM:1120	Principles of Chemistry II	4
SEES:2310 or SEES:3320	Introduction to Climatology or Earth's Climate System	3
SEES:2673	Ecology	3
GE CLAS Core: World Languages Second Level Proficiency or elective course [e]		4 - 5
Elective course [d]		2
	Hours	**16-17**
Third Year		
Fall		
PHYS:1511 or PHYS:1611	College Physics I [b] or Introductory Physics I	4
SEES:2050	Foundations of GIS	4
SEES:3330	Sedimentary Geology	4
GE CLAS Core: World Languages Third Level Proficiency or elective course [e]		4 - 5
	Hours	**16-17**
Spring		
PHYS:1512 or PHYS:1612	College Physics II [b] or Introductory Physics II	4
SEES:3360	Soil Genesis and Geomorphology	3
Major Elective: environmental geoscience track elective course (numbered 3000 or above) [f]		3 - 4
GE CLAS Core: Historical Perspectives [c]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [e]		4 - 5
	Hours	**17-19**
Fourth Year		
Fall		
SEES:4630	Hydrogeology	4
SEES:4790	Applied Environmental Geology	3
Major Elective: environmental geoscience track elective course (numbered 3000 or above) [f]		3 - 4
GE CLAS Core: Literary, Visual, and Performing Arts [c]		3
Elective course [d]		3
	Hours	**16-17**
Spring		
SEES:4800	Environmental Geophysics	3
Major Elective: computer science/statistics course [g]		3
Major Elective: environmental geoscience track elective course (numbered 3000 or above) [f]		3 - 4
GE CLAS Core: Values and Society [c]		3
Elective course [d]		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [h]		
	Hours	**15-16**
	Total Hours	**126-135**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b Fulfills a major requirement and may fulfill a GE requirement.

c GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

d Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

e Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate

Programs Office with questions concerning the World Languages requirement.

f Students must complete at least 9 s.h. in elective courses numbered 3000 or above, including at least one course from the field study category and one course from each of two other categories. See the General Catalog for list of approved courses.

g Select one course from SEES:4100, CS:1110, STAT:2010, STAT:3510.

h Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.