The Department of Earth and Environmental Sciences’ programs are designed to help students develop an in-depth understanding of the processes that affect the earth’s surface and that have the greatest impacts on society. Graduates of such programs contribute to the solution of environmental problems such as soil or groundwater contamination,flooding, slope stability, shore erosion related to changing land use, or coping with the impact of sea-level rise or changing weather patterns related to global warming. Commonly, environmental professionals are expected to work effectively as part of a multidisciplinary team containing scientists, engineers, and professionals who can evaluate the legal, economic, political, and social ramifications of complex environmental problems. Northeastern’s emphasis on experiential, off-campus learning in addition to classroom learning is designed to help our students to become well grounded in their field of study and to work effectively with others to study and address real problems, as part of their undergraduate program.

Our Bachelor of Science in Environmental Science degree is organized for students who seek a comprehensive understanding of the scientific implications of environmental issues and the ways that environmental scientists from a range of disciplines can approach their solution. Every student has an opportunity to develop core knowledge in geology, biology, chemistry, and mathematics early in the program. Students then select one of four concentrations—surficial processes; marine science; wildlife studies; or environmental geology—as a program focus for their upper-level course work. We also provide an Open Option for students whose interests do not fall into one of these four areas. Students who elect this option work with a faculty advisor to identify a group of five mid- to upper-level science courses that are aligned with the student’s career interests.

Our Bachelor of Arts in Environmental Studies degree is designed to provide a flexible platform for students whose primary interest is in the area of environmental policy, rather than environmental science. In their first two years, all environmental studies majors complete introductory courses in the sciences (biology, chemistry, geology), as well as introductory- to intermediate-level course work in economics, political science, philosophy, and sociology. Students then work with a faculty advisor to select a set of intermediate- to upper-level courses in an area appropriate to the student’s career objectives. A senior thesis is required in the environmental studies major.

A number of dual-major programs are offered; these can help focus a student’s course choices along avenues that faculty feel are particularly appropriate.

Fieldwork is a valued component of training in our programs, and many of our courses utilize field sites throughout New England to demonstrate environmental processes or problems in their full complexity. In addition to sponsoring local trips, we have taken students on one longer field excursion each year to Iceland, the Cascade Mountains of Washington, the island of San Salvador in the Bahamas, or the Grand Canyon. Students also have the option to complete undergraduate research experiences with a faculty member. Undergraduate research projects can involve fieldwork and/or lab work completed under the guidance of faculty.

Many of our recent graduates work for environmental or geotechnical firms or continue their studies in graduate school. Students who participate in the co-op program typically work with local engineering or environmental consulting companies or with government agencies. These jobs often involve assessing building sites, evaluating land use, and studying problems concerned with groundwater contamination and remediation. Students in the environmental studies program are prepared to work in environmental planning, regulation, policy, or compliance. These broad-based programs also aim to prepare students to go into environmental education or law. Co-op experiences in environmental planning may include government internships or work in environmental compliance offices.

Transferring to the Major
Same as college standards. Acceptance into the major will be based on students’ meeting the department’s criteria for admission and availability of space in the programs.

Academic Progression Standards
Same as college standards.

BS in Environmental Science

NU CORE REQUIREMENTS
See page 42 for requirement list.
ENVIRONMENTAL SCIENCE MAJOR REQUIREMENTS

Geology Courses
Complete the following six courses with corresponding labs, as indicated:
- ENV U115 Environmental Science 4 SH
- ENV U200 Dynamic Earth 4 SH
- ENV U340 Earth Landforms and Processes 4 SH
- ENV U510 Environmental Planning 4 SH
- ENV U550 Geology and Land-Use Planning 4 SH
- ENV U520 Applied Hydrogeology 4 SH
- ENV U560 Geographic Information Systems 4 SH

Calculus 1
Complete one of the following courses:
- MTH U141 Calculus 1 4 SH
- MTH U151 Calculus and Differential Equations for Biology 1

Calculus 2
Complete one of the following courses:
- MTH U142 Calculus 2 4 SH
- MTH U152 Calculus and Differential Equations for Biology 2

Biology 1
Complete one of the following courses with corresponding lab:
- BIO U101 Principles of Biology 1 4 SH
- BIO U111 General Biology 1 4 SH
- BIO U122 Lab for BIO U111 1 SH

General Chemistry 1
Complete the following course with corresponding lab:
- CHM U211 General Chemistry 1 4 SH
- CHM U212 Lab for CHM U211 1 SH

Biology 2
Complete one of the following courses with corresponding lab:
- BIO U103 Principles of Biology 2 4 SH
- BIO U113 General Biology 2 4 SH
- BIO U114 Lab for BIO U113 1 SH

General Chemistry 2
Complete the following course with corresponding lab:
- CHM U214 General Chemistry 2 4 SH
- CHM U215 Lab for CHM U214 1 SH

Earth and Environmental Science Capstone
Complete the following course:
- ENV U900 Earth and Environmental Science Capstone 1 SH

ENVIRONMENTAL SCIENCE DISCIPLINES
Complete the required courses in one of the disciplines (surficial processes, marine science, wildlife studies, environmental geology, or the independent discipline) listed below:

Surficial Processes
ORGANIC CHEMISTRY
Complete one of the following courses with corresponding lab:
- CHM U104 Organic Chemistry for Health Sciences 4 SH
- CHM U311 Organic Chemistry I 4 SH
- ENV U105 Lab for CHM U104 1 SH
- CHM U311 Lab for CHM U311 1 SH

Surficial Processes Electives
Complete four courses from the following list with corresponding labs, as indicated:
- CIV U334 Environmental Engineering I 4 SH
- CIV U340 Soil Mechanics 4 SH
- ENV U310 Earth Materials 4 SH
- ENV U311 Lab for ENV U310 1 SH
- ENV U400 Field Geology 4 SH
- ENV U410 Environmental Geochemistry 4 SH
- ENV U418 Geophysics 4 SH
- ENV U501 Geologic Field Seminar 4 SH
- ENV U510 Geology and Land-Use Planning 4 SH
- ENV U520 Applied Hydrogeology 4 SH
- ENV U523 Soil Science 4 SH
- ENV U535 Introduction to Remote Sensing 4 SH
- ENV U536 Lab for ENV U535 1 SH
- ENV U544 Sedimentation 4 SH
- ENV U545 Lab for ENV U544 1 SH
- ENV U546 Coastal Processes 4 SH
- ENV U547 Lab for ENV U546 1 SH
- ENV U555 Wetlands 4 SH
- ENV U557 Environmental Pollution 4 SH
- ENV U570 Glacial and Quaternary History 4 SH
- ENV U571 Lab for ENV U570 1 SH
- ENV U580 Groundwater Modeling 4 SH
- ENV U582 Groundwater Geochemistry 4 SH

Marine Science
ORGANIC CHEMISTRY
Complete one of the following courses with corresponding lab:
- CHM U104 Organic Chemistry for Health Sciences 4 SH
- CHM U311 Organic Chemistry I 4 SH
- ENV U105 Lab for CHM U104 1 SH
- CHM U311 Lab for CHM U311 1 SH

Marine Science Electives
Complete either one semester of the Three Seas Marine Biology Program or complete the three marine science courses with corresponding labs, as indicated:
- THREE SEAS PROGRAM
- BIO U501 Marine Botany 4 SH
- BIO U502 Lab for BIO U501 1 SH
### Marine Science Courses

- **BIO U503** Marine Invertebrate Zoology 4 SH
- with **BIO U504** Lab for BIO U503 1 SH
- **BIO U505** Biology of Corals 3 SH
- **BIO U507** Biology and Ecology of Fishes 3 SH
- **BIO U509** Marine Birds and Mammals 2 SH
- with **BIO U510** Lab for BIO U509 1 SH
- **BIO U511** Adaptations of Aquatic Organisms 3 SH
- **BIO U513** Tropical Terrestrial Ecology 1 SH
- **BIO U515** Marine Ecology 4 SH
- **BIO U517** Oceanography 2 SH
- with **BIO U518** Lab for BIO U517 1 SH
- **BIO U519** Ocean and Coastal Processes 2 SH
- **BIO U521** Experimental Design Marine Ecology 4 SH
- with **BIO U522** Lab for BIO U521 1 SH
- **BIO U523** Molecular Marine Biology 3 SH
- **BIO U525** Marine Microbial Ecology 2 SH
- with **BIO U526** Lab for BIO U525 1 SH

### Wildlife Studies

#### REQUIRED COURSES

Complete the following three courses with corresponding labs:
- **BIO U301** Genetics and Molecular Biology 4 SH
- with **BIO U302** Lab for BIO U301 1 SH
- **BIO U311** Ecology 4 SH
- with **BIO U312** Lab for BIO U311 1 SH
- **BIO U315** Invertebrate Zoology 4 SH
- with **BIO U316** Lab for BIO U315 1 SH

#### WILDLIFE STUDIES ELECTIVES

Complete two courses from the following list with corresponding labs, as indicated:
- **BIO U315** Invertebrate Zoology 4 SH
- with **BIO U316** Lab for BIO U315 1 SH
- **BIO U317** Vertebrate Zoology 4 SH
- with **BIO U318** Lab for BIO U317 1 SH
- **BIO U403** Animal Behavior 4 SH
- **BIO U509** Marine Birds and Mammals 2 SH
- with **BIO U510** Lab for BIO U509 1 SH
- **BIO U559** Entomology 4 SH
- with **BIO U560** Lab for BIO U559 1 SH
- **BIO U561** Herpetology 4 SH
- with **BIO U562** Lab for BIO U561 1 SH
- **BIO U563** Ornithology 4 SH
- with **BIO U564** Lab for BIO U563 1 SH
- **BIO U565** Mammalogy 4 SH
- with **BIO U566** Lab for BIO U565 1 SH
- **BIO U567** Wildlife Biology 4 SH
- with **BIO U568** Lab for BIO U567 1 SH

### Environmental Geology

#### REQUIRED COURSES

Complete the following two courses with corresponding labs:
- **ENV U220** History of Earth and Life 4 SH
- with **ENV U221** Interpreting Earth History 1 SH
- **ENV U310** Earth Materials 4 SH
- with **ENV U311** Lab for ENV U310 1 SH

#### ENVIRONMENTAL GEOLOGY ELECTIVES

Complete three of the following courses with corresponding labs, as indicated:
- **ENV U320** Igneous Petrology and Volcanology 4 SH
- with **ENV U321** Lab for ENV U320 1 SH
- **ENV U400** Field Geology 4 SH
- **ENV U410** Environmental Geochemistry 4 SH
- **ENV U418** Geophysics 4 SH
- **ENV U501** Geologic Field Seminar 4 SH
- **ENV U523** Soil Science 4 SH
- **ENV U530** Structural Geology 4 SH
- with **ENV U531** Lab for ENV U530 1 SH
- **ENV U535** Introduction to Remote Sensing 4 SH
- with **ENV U536** Lab for ENV U535 1 SH
- **ENV U540** Sedimentary Basin Analysis 4 SH
- with **ENV U541** Lab for ENV U540 1 SH
- **ENV U542** Fossils and Paleoeocology 4 SH
- with **ENV U543** Lab for ENV U542 1 SH
- **ENV U544** Sedimentation 4 SH
- with **ENV U545** Lab for ENV U544 1 SH
- **ENV U546** Coastal Processes 4 SH
- with **ENV U547** Lab for ENV U546 1 SH
- **ENV U570** Glacial and Quaternary History 4 SH
- with **ENV U571** Lab for ENV U570 1 SH
- **ENV U585** Engineering Geology 4 SH

### Independent Discipline

#### ENVIRONMENTAL SCIENCE COURSES

Complete a suite of at least five courses that have been approved by your advisor.

#### ENVIRONMENTAL SCIENCE MAJOR CREDIT REQUIREMENT

Complete 77 semester hours for the major.

### GENERAL ELECTIVES

Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

### COOPERATIVE EDUCATION

If elected

#### UNIVERSITY-WIDE REQUIREMENTS

128 total semester hours required
Minimum 2.000 GPA required
BA in Environmental Studies

NU CORE REQUIREMENTS
See page 42 for requirement list.

COLLEGE REQUIREMENTS FOR BA
See page 69 for requirement list.

ENVIRONMENTAL STUDIES MAJOR

Science Courses
Complete the following three courses with corresponding lab:
BIO U145  Environment and Humankind  4 SH
CHM U101  General Chemistry  4 SH
with CHM U102 Lab for CHM U101  1 SH
ENV U115  Environmental Science  4 SH

History Course
Complete the following course:
HST U342  Environmental History of North America  4 SH

Economics Course
Complete the following course:
ECN U116  Principles of Microeconomics  4 SH

Sociology Course
Complete the following course:
SOC U246  Environment and Sociology  4 SH

Political Science Courses
Complete the following two courses:
POL U150  American Government  4 SH
POL U395  Environmental Politics  4 SH

Geology Courses
Complete the following two courses:
ENV U112  Environmental Geology  4 SH
ENV U510  Environmental Planning  4 SH

Statistics Course
Complete one course from the following list:
ECN U350  Statistics  4 SH
MTH U280  Statistics and Software  4 SH
POL U400  Quantitative Techniques  4 SH
SOC U320  Statistical Analysis in Sociology  4 SH

Upper-Division Electives
Complete six courses in one area. See department for area options.

Senior Thesis
Complete the following course:
ENV U700  Senior Thesis  4 SH

ENVIRONMENTAL STUDIES MAJOR CREDIT REQUIREMENT
Complete 73 semester hours in the major.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION
If elected

UNIVERSITY-WIDE REQUIREMENTS
128 total semester hours required
Minimum 2.000 GPA required

BA in Environmental Studies and History

NU CORE REQUIREMENTS
See page 42 for requirement list.

COLLEGE REQUIREMENTS FOR BA
See page 69 for requirement list.

ENVIRONMENTAL STUDIES REQUIREMENTS

Science Requirements
Complete the following three courses with corresponding lab:
BIO U145  Environment and Humankind  4 SH
ENV U115  Environmental Science  4 SH
ENV U220  History of Earth and Life  4 SH
with ENV U221  Interpreting Earth History  1 SH

Humanities Requirement
Complete the following course:
PHL U180  Environmental Ethics  4 SH

Social Science Requirements
Complete the following three courses:
ECN U116  Principles of Microeconomics  4 SH
POL U150  American Government  4 SH
SOC U246  Environment and Sociology  4 SH

Environmental Studies Electives
Complete two courses from the following list:
ECN U423  Environmental Economics  4 SH
PHL U480  Environmental Philosophy  4 SH
POL U395  Environmental Politics  4 SH

HISTORY REQUIREMENTS

History Requirements
Complete the following six courses:
HST U130  Introduction to American History  4 SH
HST U170  Introduction to European History  4 SH
HST U201  The History Colloquium  4 SH
HST U301  The History Seminar  4 SH
HST U342  Environmental History of North America  4 SH
with HST U302  Historical Writing  1 SH

History-Geographic Area Electives
Complete two courses from the following list:
HST U150  East Asian Studies  4 SH
HST U180  African History  4 SH
HST U185  Introduction to Middle Eastern History  4 SH
HST U210  Atlantic Connection  4 SH
HST U251  Modern East Asia  4 SH
HST U254  Contemporary China  4 SH
HST U260 Modern Latin America 4 SH
HST U261 The Modern Caribbean 4 SH
HST U265 Canadian History 4 SH

History-Area Electives
Complete four HST courses, approved by a faculty advisor, focused on an idea or geographic area. These courses must be at the 300-level or above.

INTEGRATIVE COURSES

Required Integrative Course
Complete the following course with corresponding lab:
ENV U560 Geographic Information Systems 4 SH
with ENV U561 Lab for ENV U560 1 SH

Integrated Elective
Complete one course from the following list:
ENV U510 Environmental Planning 4 SH
ENV U550 Geology and Land-Use Planning 4 SH
HST U222 History of Science and Technology 4 SH

EXPERIENTIAL EDUCATION AND CAPSTONE

Experiential Education
Complete an approved activity from either department, combined with reflection in capstone.

Capstone Course
Complete one of the following:
ENV U390 Experiential Education Seminar 4 SH
ENV U700 Senior Thesis 4 SH
ENV U900 Earth and Environmental Science Capstone 1 SH
ENV U970 Junior/Senior Honors Project 1 4 SH
HST U701 Capstone Seminar 4 SH

ENVIRONMENTAL STUDIES AND HISTORY DUAL-MAJOR CREDIT REQUIREMENT
Complete 91 semester hours in the major.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION
If elected

UNIVERSITY-WIDE REQUIREMENTS
128 total semester hours required
Minimum 2.000 GPA required

BA in Environmental Studies and International Affairs

NU CORE REQUIREMENTS
See page 42 for requirement list.

COLLEGE REQUIREMENTS FOR BA
See page 69 for requirement list.

ENVIRONMENTAL STUDIES REQUIREMENTS

Social Science Component
Complete one course from each of the following three subject areas:

PHILOSOPHY
PHL U180 Environmental Ethics 4 SH
PHL U480 Environmental Philosophy 4 SH

SOCIOLOGY
SOC U246 Environment and Sociology 4 SH

POLITICAL SCIENCE
POL U395 Environmental Politics 4 SH

Science Component
Complete one course from each of the following five subject areas:

BIOLOGY
BIO U145 Environment and Humankind 4 SH

EARTH AND ENVIRONMENTAL SCIENCES
ENV U112 Environmental Geology 4 SH
ENV U114 Natural Disasters and Catastrophes 4 SH
ENV U200 Dynamic Earth 4 SH

ENVIRONMENT
ENV U115 Environmental Science 4 SH

QUANTITATIVE METHODS
ENV U560 Geographic Information Systems 4 SH
with ENV U561 Lab for ENV U560 1 SH
MTH U280 Statistics and Software 4 SH

PLANNING
ENV U510 Environmental Planning 4 SH
ENV U550 Geology and Land-Use Planning 4 SH

INTERNATIONAL AFFAIRS REQUIREMENTS

Required Courses
Complete the following three courses:
IAF U101 Globalization and International Affairs 4 SH
IAF U400 International Conflict and Negotiation 4 SH
POL U155 Comparative Politics 4 SH

Regional Analysis
Complete two regional analysis courses, both of which must be in one region, from the list “Approved Courses: International Affairs—Regional Analysis and Global Dynamics” on page 163. Summer-session study abroad is also acceptable in combination with “Dialogue of Civilizations.” See department for additional courses.

Global Dynamics
Complete three global dynamics courses from the list “Approved Courses: International Affairs—Regional Analysis and Global Dynamics” on page 163. Note: POL U155 is a required course and may not be used to satisfy the global dynamics requirement. See department for additional courses.
International Experiential Education
Complete at least one “international semester” via study abroad, international internship, international co-op, or two short-term programs.

INTEGRATIVE COURSES
Complete four courses from the following list:
- ECN U423 Environmental Economics 4 SH
- or ECN U290 The Global Economy 4 SH
- ENV U515 Sustainable Development 4 SH
- HST U211 World History since 1945 4 SH
- or HST U342 Environmental History of North America 4 SH
- IAF U700 Senior Capstone Seminar in International Affairs 4 SH

ENVIRONMENTAL STUDIES AND INTERNATIONAL AFFAIRS DUAL-MAJOR CREDIT REQUIREMENT
Complete 80 semester hours in the major.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.

COOPERATIVE EDUCATION
If elected

UNIVERSITY-WIDE REQUIREMENTS
128 total semester hours required
Minimum 2.000 GPA required

BA in Environmental Studies and Philosophy

NU CORE REQUIREMENTS
See page 42 for requirement list.

COLLEGE REQUIREMENTS FOR BA
See page 69 for requirement list.

ENVIRONMENTAL STUDIES REQUIREMENTS

Social Science Component
Complete the following four courses. Note: ECN U116 is a recommended prerequisite for ECN U423, and POL U150 is a recommended prerequisite for POL U395:
- ECN U423 Environmental Economics 4 SH
- HST U342 Environmental History of North America 4 SH
- POL U395 Environmental Politics 4 SH
- SOC U246 Environment and Sociology 4 SH

Science Component
BIOLOGY
Complete the following course:
- BIO U145 Environment and Humankind 4 SH

EARTH AND ENVIRONMENTAL SCIENCES
Complete one course from the following list:
- ENV U112 Environmental Geology 4 SH
- ENV U114 Natural Disasters and Catastrophes 4 SH
- ENV U200 Dynamic Earth 4 SH

ENVIRONMENT
Complete the following course:
- ENV U115 Environmental Science 4 SH

QUANTITATIVE METHODS
Complete one course from the following list with corresponding lab, if indicated:
- ENV U560 Geographic Information Systems 4 SH
- with ENV U561 Lab for ENV U560 1 SH
- MTH U280 Statistics and Software 4 SH

PHILOSOPHY REQUIREMENTS

Philosophy Required Courses
Complete the following four courses:
- PHL U115 Introduction to Logic 4 SH
- or PHL U215 Symbolic Logic 4 SH
- PHL U180 Environmental Ethics 4 SH
- PHL U325 Ancient Philosophy 4 SH
- PHL U330 Modern Philosophy 4 SH

Philosophy of Science/Environment
Complete one of the following courses:
- PHL U480 Environmental Philosophy 4 SH
- PHL U510 Philosophy of Science 4 SH

Advanced Philosophy Elective
Complete one course from the following list:
- PHL U435 Moral Philosophy 4 SH
- PHL U500 Theory of Knowledge 4 SH
- PHL U505 Metaphysics 4 SH
- PHL U535 Philosophy of Mind 4 SH

Philosophy Seminar
Complete one philosophy seminar:
- PHL U901 Topics in Philosophy Seminar 4 SH
- PHL U902 Great Philosophers Seminar 4 SH

Additional Electives
Complete two additional electives in philosophy.

INTEGRATIVE COURSES

Integrative Courses
Complete the following two courses:
- ENV U510 Environmental Planning 4 SH
- ENV U550 Geology and Land-Use Planning 4 SH

ENVIRONMENTAL STUDIES AND PHILOSOPHY DUAL-MAJOR CREDIT REQUIREMENT
Complete 100 semester hours in the major.

GENERAL ELECTIVES
Additional courses taken beyond college and major course requirements to satisfy graduation credit requirements.
COOPERATIVE EDUCATION
If elected

UNIVERSITY-WIDE REQUIREMENTS
128 total semester hours required
Minimum 2.000 GPA required

BA in Environmental Studies and Political Science

NU CORE REQUIREMENTS
See page 42 for requirement list.

COLLEGE REQUIREMENTS FOR BA
See page 69 for requirement list.

ENVIRONMENTAL STUDIES REQUIREMENTS

Social Science Component
Complete one course in each of the following four subject areas:

PHILOSOPHY
PHL U180 Environmental Ethics 4 SH
PHL U480 Environmental Philosophy 4 SH

SOCIODEMICS
SOC U246 Environment and Sociology 4 SH

ECONOMICS
ECN U423 Environmental Economics 4 SH

HISTORY
HST U342 Environmental History of North America 4 SH

Science Component
Complete one course in each of the following four subject areas:

BIOLOGY
BIO U145 Environment and Humankind 4 SH

EARTH AND ENVIRONMENTAL SCIENCES
ENV U112 Environmental Geology 4 SH
ENV U114 Natural Disasters and Catastrophes 4 SH
ENV U200 Dynamic Earth 4 SH

ENVIRONMENT
ENV U115 Environmental Science 4 SH

QUANTITATIVE METHODS
ENV U560 Geographic Information Systems 4 SH
with ENV U561 Lab for ENV U560 1 SH
MTH U280 Statistics and Software 4 SH

POLITICAL SCIENCE MAJOR REQUIREMENTS

Political Science Requirements
Complete the following five courses:

POL U150 American Government 4 SH
POL U155 Comparative Politics 4 SH
POL U160 International Relations 4 SH
POL U395 Environmental Politics 4 SH
POL U400 Quantitative Techniques 4 SH

Environmental Studies and Political Science

BS in Environmental Geology and Chemistry
For degree requirements, please visit the myNEU Web Portal (www.myneu.neu.edu), click on the “Self-Service” tab, then on “My Degree Audit.”

BA in Environmental Geology and Environmental Studies
For degree requirements, please visit the myNEU Web Portal (www.myneu.neu.edu), click on the “Self-Service” tab, then on “My Degree Audit.”

BS in Environmental Geology and Mathematics
For degree requirements, please visit the myNEU Web Portal (www.myneu.neu.edu), click on the “Self-Service” tab, then on “My Degree Audit.”
Minor in Environmental Geology

**REQUIRED COURSES**
Complete the following four courses with corresponding labs:
- ENV U200 Dynamic Earth 4 SH
- with ENV U201 Lab for ENV U200 1 SH
- ENV U220 History of Earth and Life 4 SH
- with ENV U221 Interpreting Earth History 1 SH
- ENV U310 Earth Materials 4 SH
- with ENV U311 Lab for ENV U310 1 SH
- ENV U510 Environmental Planning 4 SH
- or ENV U550 Geology and Land-Use Planning 4 SH

**GEOLOGY ELECTIVE**
Complete one ENV course.

**GPA REQUIREMENT**
2.000 GPA required in the minor

Minor in Environmental Science

**Introductory Course Work**
Complete one of the following courses or course/lab combinations:
- BIO U121 Basic Microbiology 4 SH
- with BIO U122 Lab for BIO U121 1 SH
- ENV U115 Environmental Science 4 SH

**Science or Engineering**
Complete one of the following courses or course/lab combinations based on your major:
- ENGINEERING MAJORS
  - CHM U214 General Chemistry 2 4 SH
  - with CHM U215 Lab for CHM U214 1 SH
- OTHER MAJORS
  - CHM U311 Organic Chemistry 1 4 SH
  - with CHM U312 Lab for CHM U311 1 SH
  - CHM U321 Analytical Chemistry 4 SH
  - with CHM U322 Lab for CHM U321 1 SH
  - CIV U334 Environmental Engineering 1 4 SH

**Social Sciences**
Complete one of the following courses:
- ECN U423 Environmental Economics 4 SH
- PHL U180 Environmental Ethics 4 SH
- POL U395 Environmental Politics 4 SH
- SOC U246 Environment and Sociology 4 SH
- SOC U485 Environment, Technology, and Society 4 SH

**ELECTIVES**
Complete any two courses or course/lab combinations from the following list. Only one of the courses may be at the 100-level. Only one course or course/lab combination may be selected from a group:

**Physics Group**
For nonengineering/nonscience majors only:
- PHY U132 Energy, Environment, and Society 4 SH

**Biology Group**
- BIO U311 Ecology 4 SH
- BIO U317 Vertebrate Zoology 4 SH
- BIO U559 Entomology 4 SH
- BIO U561 Herpetology 4 SH
- BIO U563 Ornithology 4 SH
- BIO U565 Mammalogy 4 SH
- BIO U567 Wildlife Biology 4 SH

**Environmental Planning Group**
- ENV U510 Environmental Planning 4 SH
- ENV U550 Geology and Land-Use Planning 4 SH

**Geology Group**
- ENV U340 Earth Landforms and Processes 4 SH
- with ENV U341 Lab for ENV U340 1 SH
- ENV U523 Soil Science 4 SH
- ENV U557 Environmental Pollution 4 SH
Hydrogeology Group
ENV U520  Applied Hydrogeology  4 SH
with ENV U521  Lab for ENV U520  1 SH
ENV U580  Groundwater Modeling  4 SH
ENV U582  Groundwater Geochemistry  4 SH

Geographic Information Systems Group
ENV U560  Geographic Information Systems  4 SH
with ENV U561  Lab for ENV U560  1 SH

Civil Engineering Group
CIV U534  Environmental Engineering 2  3 SH
CIV U536  Hydrologic Engineering  4 SH

INTERDISCIPLINARY WORK
Complete the independent project, the applied experience, or the environmental safety program.

Independent Project
See program advisor for approval before embarking on the project.

Applied Experience
See program advisor for details.

Environmental Safety Program
See program advisor for details.

GPA REQUIREMENT
2.000 GPA required in the minor

Minor in Environmental Studies

REQUIRED COURSE
Complete the following course:
ENV U115  Environmental Science  4 SH

SCIENCE COURSE
Complete one course from the following list with corresponding lab, if indicated:
BIO U145  Environment and Humankind  4 SH
CHM U211  General Chemistry I  4 SH
with CHM U212 Lab for CHM U211  1 SH
ENV U112  Environmental Geology  4 SH
ENV U200  Dynamic Earth  4 SH
with ENV U201 Lab for ENV U200  1 SH

SOCIAL SCIENCE COURSES
Complete two courses from the following list:
ECN U116  Principles of Microeconomics  4 SH
HST U342  Environmental History of North America  4 SH
POL U150  American Government  4 SH
SOC U246  Environment and Sociology  4 SH

INTERDISCIPLINARY COURSES
Complete two courses from the following list:
ENV U510  Environmental Planning  4 SH
ENV U550  Geology and Land-Use Planning  4 SH
ENV U557  Environmental Pollution  4 SH
POL U395  Environmental Politics  4 SH

GPA REQUIREMENT
2.000 GPA required in the minor
Minor in Geology

REQUIRED COURSES
Complete the following four courses with corresponding labs:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>SH</th>
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</thead>
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<tr>
<td>ENV U200</td>
<td>Dynamic Earth</td>
<td>4</td>
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<tr>
<td>with ENV U201</td>
<td>Lab for ENV U200</td>
<td>1</td>
</tr>
<tr>
<td>ENV U220</td>
<td>History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>with ENV U221</td>
<td>Interpreting Earth History</td>
<td>1</td>
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<tr>
<td>ENV U310</td>
<td>Earth Materials</td>
<td>4</td>
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<td>with ENV U311</td>
<td>Lab for ENV U310</td>
<td>1</td>
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<tr>
<td>ENV U320</td>
<td>Igneous Petrology and Volcanology</td>
<td>4</td>
</tr>
<tr>
<td>with ENV U321</td>
<td>Lab for ENV U320</td>
<td>1</td>
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GEOLOGY ELECTIVE
Complete one ENV course.

GPA REQUIREMENT
2.000 GPA required in the minor