Environmental studies explores the relationships between the earth's natural and physical systems, human political, economic, and social systems, and human understanding of the environment as informed by ethics, philosophy, art, history, religion, and literature. The Department of Environmental Studies seeks to create a diverse and inclusive teaching and learning community that promotes an integrated understanding of humankind's relationship to the environment. It does this by encouraging rigorous study of the biological and physical processes that characterize the physical environment and those ways in which human activity can promote or compromise the environment's overall health; critical examination of the political, economic, and social institutions that frame human interaction with the environment; and scholarly engagement with those philosophical, spiritual, literary, and artistic traditions that inform and reflect our understanding of the environment and our relationship to it.

Overview of the Major
Interdisciplinary inquiry and creative practice coupled to disciplinary work in contributing departments enable both broad and focused perspectives on environmental problems, issues, and solutions. This program offers a major with three areas of emphasis through which students choose to focus their work: natural sciences, social sciences, and arts and humanities. In many cases work in these areas of emphasis overlaps with traditional departmental curricula, and students choose to complete a second major there. Recognizing the global dimensions of numerous environmental problems and the need for learning outside of the classroom, the program provides a number of opportunities for studies abroad and in the field.

All students majoring in environmental studies take twelve required courses. Three of those courses emphasize interdisciplinary approaches, including an introductory course that explores the interdisciplinary nature of environmental questions and lays the groundwork for the major, an intermediate level course attending to the nature of environmental inquiry and how to integrate and apply one's knowledge and skills for personal, civic and work-related roles, and a senior seminar course that challenges students to reflect on what they have learned throughout their studies and to generate a project proposal for future work. The department strongly encourages students to consider how participation in off-campus study experiences, internships, research, creative practice, and learning communities will contribute to knowledge of environmental systems, the relationships between humans and the environment, and to personal/professional growth.

The department offers a concentration in environmental studies for students wishing to complement another major with a suite of courses focused on the environment.

Intended Learning Outcomes for the Major

Distinction

Special Programs
A number of semester long off-campus programs include an internship or independent study component in which students may elect to focus on environmental issues. Students must consult with the environmental studies chair in planning their programs and must receive approval before counting work from off-campus programs toward an environmental studies major or concentration. The programs listed below have a substantial focus in environmental studies and will generally contribute to the satisfaction of environmental studies major requirements:

- Biology in South India (a program of St. Olaf College)
- Environmental Science in Australia & New Zealand (faculty-led semester St. Olaf College)
- CAPA Global Cities Program (Sydney, Australia)
- DIS Study Abroad in Scandinavia (Copenhagen, Denmark)
- Environmental Sustainability: Ecology, Policy and Social Transformation (HECUA in Minneapolis/St. Paul)
- Sustainable Agriculture, Food, and Justice (HECUA in Italy)
- Washington Semester (American University)
- Wilderness Field Station (Coe College)

Requirements

Environmental Studies Major Requirements for the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVST 137</td>
<td>Introduction to Environmental Studies</td>
<td>1.00</td>
</tr>
<tr>
<td>ENVST 237</td>
<td>Integration and Application in Environmental Studies</td>
<td>1.00</td>
</tr>
<tr>
<td>ENVST 399</td>
<td>Seminar in Environmental Studies</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Nine courses in areas of emphasis: 9.00

Select six additional courses specific to the area of emphasis chosen (natural science, social science, or arts and humanities) and three additional courses from outside the selected area of emphasis. Unless permission is granted by the chair, a course may not count for more than one requirement in the major.

Total Credits 12
Areas of Emphasis in the Environmental Studies Major
Natural Science

The natural science area of emphasis seeks to give students a broad exposure to the range of problems encountered by scientists working in environmental fields and the investigative tools they use, while providing a solid foundation for further study in one of the contributing disciplines. Students planning careers in environmental science are strongly urged to consider an additional major in biology or chemistry. Nine courses are required in addition to the introductory, integration/application, and capstone courses specified above:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Three courses from outside your area of emphasis.</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>Select one or two social sciences courses from the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES/PS 201                Topics in Global Environmental Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVST 232                Environmental Policy and Regulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVST 235                Sustainable Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES/PS 276                Environmental Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AS/ES 277                Environmental Sustainability in Japan (abroad)</td>
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</tr>
<tr>
<td></td>
<td>ENVST 281                Topics in Environmental Studies (when taught with social science focus and approved by the chair)</td>
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<tr>
<td></td>
<td>or ENVST 381              Advanced Research Topics in Environmental Studies</td>
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</tr>
<tr>
<td></td>
<td>ECON 242                Environmental Economics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ID 234                   Human Geography of the Middle East</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSCI 221                Environmental Policy (Environmental Science in Australia and New Zealand)</td>
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<tr>
<td></td>
<td>PSYCH 227                Environmental Psychology at Rocky Mountain National Park (off-campus)</td>
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<tr>
<td></td>
<td>SOAN 222                Cultural Anthropology (Environmental Science in Australia and New Zealand)</td>
<td></td>
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<tr>
<td></td>
<td>SOAN 247                Disasters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOAN 297                Topics (when taught as Environmental Anthropology)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one or two arts and humanities courses from the following:</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>ENVST 202                The Culture of Nature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVST 270                Nature and American Landscapes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVST 281                Topics in Environmental Studies (when taught with arts and humanities focus and approved by the chair)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or ENVST 381              Advanced Research Topics in Environmental Studies</td>
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<tr>
<td></td>
<td>FILM 230                 Media and the Environment (abroad)</td>
<td></td>
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<tr>
<td></td>
<td>GERM 276                 Green Germany</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIST 245                 Environmental History of Latin America</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIST 275                 Environmental History</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHIL 257                 Environmental Ethics</td>
<td></td>
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<tr>
<td></td>
<td>or REL 278               Christian Ethics and Ecological Justice</td>
<td></td>
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<tr>
<td></td>
<td>NORW 224                 Contemporary Nordic Literature (when taught with ENVST focus)</td>
<td></td>
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<tr>
<td></td>
<td>ENGL 276                 Literature and the Environment</td>
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</tbody>
</table>

Select one statistics modeling and mapping course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENVST 255                Remote Sensing and Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STAT 212                 Statistics for the Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STAT 272                 Statistical Modeling</td>
<td></td>
</tr>
</tbody>
</table>

Select one intermediate chemistry course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CHEM 248 &amp; CHEM 254          Organic Chemistry II and Synthesis Laboratory II (0.25)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 255 &amp; CHEM 256          Analytical Chemistry and Analytical Laboratory (0.25)</td>
<td></td>
</tr>
</tbody>
</table>

Select one intermediate ecology course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BIO 261                  Ecological Principles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIO 226                  Terrestrial Ecology (Environmental Science in Australia and New Zealand)</td>
<td></td>
</tr>
</tbody>
</table>

Select two environmental science courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENVST 281                Topics in Environmental Studies (when taught with natural science focus and approved by the chair)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BI/ES 286                Tropical Ecology and Sustainable Land Use in Costa Rica (abroad)</td>
<td></td>
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<tr>
<td></td>
<td>BI/ES 350                Biogeochemistry: Theory and Application</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVST 381                Advanced Research Topics in Environmental Studies (when taught with environmental science focus and approved by the chair)</td>
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</tr>
<tr>
<td></td>
<td>ENVST 396                Directed Undergraduate Research</td>
<td></td>
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<tr>
<td></td>
<td>BIO 224                  Marine Ecology (Environmental Science in Australia and New Zealand)</td>
<td></td>
</tr>
</tbody>
</table>

Select one level III course in environmental science: 1.00
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI/ES 350</td>
<td>Biogeochemistry: Theory and Application</td>
<td></td>
</tr>
<tr>
<td>BIO 371</td>
<td>Field Ecology</td>
<td></td>
</tr>
<tr>
<td>BIO 391</td>
<td>Selected Topics (when taught with environmental studies focus and approved by the chair)</td>
<td></td>
</tr>
<tr>
<td>CHEM 391</td>
<td>Selected Topics in Chemistry (when taught with environmental science focus and approved by the chair)</td>
<td></td>
</tr>
<tr>
<td>ENVST 381</td>
<td>Advanced Research Topics in Environmental Studies (when taught with natural science focus and approved by the chair)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits:** 9

1. Student pursuing a natural science area of emphasis may not count both PHIL 257 and REL 278.
2. One of these two courses must carry Environmental Studies Departmental designation.

### Social Science

The social science area of emphasis seeks to provide students with a broad exposure to the methods and models employed by social scientists working in the environmental field. In addition to the introductory, integrative/application and capstone courses (specified above), students select nine additional courses from the following groups:

**Code** | **Title**                                                                 | **Credits**  |
--- | --- | --- |
**Select three courses from outside your area of emphasis.** 1.50

**Select one or two natural science courses of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVST 123</td>
<td>Geophysics: Perspectives on the Dynamic Earth</td>
<td></td>
</tr>
<tr>
<td>ENVST 245</td>
<td>Global Climate Change</td>
<td></td>
</tr>
<tr>
<td>ENVST 255</td>
<td>Remote Sensing and Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>ENVST 281</td>
<td>Topics in Environmental Studies (when taught with natural science focus and approved by the chair)</td>
<td></td>
</tr>
<tr>
<td>ENVST 381</td>
<td>Advanced Research Topics in Environmental Studies (when taught with natural science focus and approved by the chair)</td>
<td></td>
</tr>
</tbody>
</table>

**BI/ES 226** | Conservation Biology                                                                 |             |
**BI/ES 228** | Environmental Health                                                                 |             |
**BI/ES 286** | Tropical Ecology and Sustainable Land Use in Costa Rica (abroad)                                                                 |             |
**BI/ES 350** | Biogeochemistry: Theory and Application                                                                 |             |

**BIO 224 Marine Biology (Environmental Science in Australia and New Zealand)**

**BIO 226 Terrestrial Ecology (Environmental Science in Australia and New Zealand) 3**

**BIO 261 Ecological Principles 3**

**CHEM 124** | A Matter of the Environment with Lab                                                                 |             |

**CHEM 255 & CHEM 256** | Analytical Chemistry and Analytical Laboratory (0.25)                                                                 |             |

**BIO 391** | Selected Topics (when taught with environmental science focus and approved by the chair)                                                                 |             |

**CHEM 391** | Selected Topics in Chemistry (when taught with environmental science focus and approved by the chair)                                                                 |             |

**Select one or two arts and humanities courses of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVST 202</td>
<td>The Culture of Nature</td>
<td></td>
</tr>
<tr>
<td>ENVST 270</td>
<td>Nature and American Landscapes</td>
<td></td>
</tr>
<tr>
<td>ENVST 281</td>
<td>Topics in Environmental Studies (when taught with arts and humanities focus and approved by chair)</td>
<td></td>
</tr>
<tr>
<td>ENVST 381</td>
<td>Advanced Research Topics in Environmental Studies (when taught with arts and humanities focus and approved by chair)</td>
<td></td>
</tr>
</tbody>
</table>

**FILM 230** | Media and the Environment (abroad)                                                                 |             |
**GERM 276** | Green Germany                                                                 |             |
**HIST 245** | Environmental History of Latin America                                                                 |             |
**HIST 275** | Environmental History                                                                 |             |
**NORW 224** | Topics in Contemporary Nordic Literature (when taught with ENVST focus)                                                                 |             |
**PHIL 257** | Environmental Ethics 2 or REL 278 Christian Ethics and Ecological Justice                                                                 |             |
**ENGL 276** | Literature and the Environment                                                                 |             |

**Select one methodological analysis course of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVST 255</td>
<td>Remote Sensing and Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>STAT 110</td>
<td>Principles of Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 212</td>
<td>Statistics for the Sciences</td>
<td></td>
</tr>
<tr>
<td>STAT 214</td>
<td>Honors Statistics for the Sciences</td>
<td></td>
</tr>
<tr>
<td>STAT 272</td>
<td>Statistical Modeling</td>
<td></td>
</tr>
<tr>
<td>ECON 263</td>
<td>Statistics for Economics</td>
<td></td>
</tr>
<tr>
<td>SOAN 371</td>
<td>Foundations of Social Science Research: Quantitative Methods</td>
<td></td>
</tr>
</tbody>
</table>
Environmental Studies

PSYCH 230 Research Methods in Psychology

PSCI 220 Analyzing Politics and Policies

Economic analysis courses:

ECON 121 Principles of Economics (or ECON 110-ECON 120) 1.00
ECON 242 Environmental Economics 1.00

Select one environmental political policy and institutions course of the following: 1.00

ENVST 232 Environmental Policy and Regulation
ES/PS 201 Topics in Global Environmental Politics
ES/PS 276 Environmental Politics

Select two social science electives of the following: 2.00

ES/PS 201 Topics in Global Environmental Politics
ENVST 232 Environmental Policy and Regulation
ENVST 235 Sustainable Development
ES/PS 276 Environmental Politics
ENVST 281 Topics in Environmental Studies (if taught with social science emphasis and approved by the chair)

Select one or two natural science courses of the following: 1.50

ENVST 123 Geophysics: Perspectives on the Dynamic Earth
ENVST 245 Global Climate Change
ENVST 255 Remote Sensing and Geographic Information Systems
ENVST 281 Topics in Environmental Studies (when taught with Natural Science focus and approved by the chair)

Select one or two social science courses of the following: 1.50

ENVST 232 Environmental Policy and Regulation
ENVST 235 Sustainable Development

Arts and the Humanities

The arts and humanities area of emphasis requires nine courses in addition to the introductory, integrative/application, and capstone courses.

Select three courses from outside your area of emphasis. 1

Select one or two natural science courses of the following: 1.50

ENST 123 Geophysics: Perspectives on the Dynamic Earth
ENST 245 Global Climate Change
ENST 255 Remote Sensing and Geographic Information Systems
ENST 281 Topics in Environmental Studies (when taught with Natural Science focus and approved by the chair)

BI/ES 226 Conservation Biology
BI/ES 228 Environmental Health
BI/ES 286 Tropical Ecology and Sustainable Land Use in Costa Rica (abroad)
BI/ES 350 Biogeochemistry: Theory and Application

BI 224 Marine Biology (Environmental Science in Australia and New Zealand)
BI 226 Terrestrial Ecology (Environmental Science in Australia and New Zealand) 2
BI 261 Ecological Principles 2
CHEM 124 A Matter of the Environment with Lab
CHEM 255 & CHEM 256 Analytical Chemistry and Analytical Laboratory (0.25)
CHEM 391 Selected Topics in Chemistry (when taught with environmental science focus and approved by the chair)

Select one or two social science courses of the following: 1.50

ENST 232 Environmental Policy and Regulation
ENST 235 Sustainable Development

Total Credits 9

1 No more than two courses from one area of emphasis.
2 Students pursuing a social science emphasis may not count both PHIL 257 and REL 278.
3 Either BIO 226 (Environmental Science in Australia) or BIO 261 can count for this requirement.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVST 137</td>
<td>Introduction to Environmental Studies</td>
<td>1.00</td>
</tr>
<tr>
<td>ENVST 237</td>
<td>Integration and Application in Environmental Studies</td>
<td>1.00</td>
</tr>
<tr>
<td>ENVST 123</td>
<td>Global Climate Change</td>
<td>1.00</td>
</tr>
<tr>
<td>ENVST 245</td>
<td>Remote Sensing and Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>ENVST 281</td>
<td>Topics in Environmental Studies (when taught with natural science focus and approved by the chair)</td>
<td>1.00</td>
</tr>
<tr>
<td>BI/ES 226</td>
<td>Conservation Biology</td>
<td></td>
</tr>
<tr>
<td>BI/ES 228</td>
<td>Environmental Health</td>
<td></td>
</tr>
<tr>
<td>BI/ES 286</td>
<td>Tropical Ecology and Sustainable Land Use in Costa Rica (abroad)</td>
<td></td>
</tr>
<tr>
<td>BI/ES 350</td>
<td>Biogeochemistry: Theory and Application</td>
<td></td>
</tr>
<tr>
<td>BIO 224 Marine Biology (Environmental Science in Australia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 226 Terrestrial Ecology (Environmental Science in Australia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 261 Ecological Principles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 124 A Matter of the Environment with Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 255 Analytical Chemistry &amp; Analytical Laboratory (0.25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 391 Selected Topics (when taught with environmental science focus and approved by chair)</td>
<td></td>
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</tr>
</tbody>
</table>

1. No more than two courses from one area of emphasis.
2. Either BIO 226 (Environmental Science in Australia) or BIO 261 can count for this requirement.

**Environmental Studies Concentration Requirements for the Concentration**

The environmental studies concentration draws upon the disciplinary strengths of a traditional major and a set of courses focused on the environment. Students may utilize environmental studies-related upper-level courses within their own discipline to complete requirements of the concentration if the courses have a significant component that addresses environmental concerns. Unless permission is granted by the chair, a course may not count for more than one requirement in the concentration. Successful completion of at least 6 courses with a grade of C or better is required.
Environmental Studies

CHEM 391 Selected Topics in Chemistry (when taught with environmental science focus and approved by the chair)

Select one social science course of the following:

1.00

ENVST 232 Environmental Policy and Regulation
ENVST 235 Sustainable Development
ENVST 281 Topics in Environmental Studies (when taught with social science focus and approved by the chair)
ENVST 381 Advanced Research Topics in Environmental Studies (when taught with social science focus and approved by the chair)
ES/PS 201 Topics in Global Environmental Politics
ES/PS 276 Environmental Politics
ECON 242 Environmental Economics
PSCI 221 Environmental Policy (Environmental Science in Australia)
PSYCH 227 Environmental Psychology at Rocky Mountain National Park (off-campus)
SOAN 222 Cultural Anthropology (Environmental Science in Australia)
SOAN 297 Topics when taught as Environmental Anthropology

Select one arts and humanities course of the following:

1.00

ENVST 202 The Culture of Nature
ENVST 270 Nature and American Landscapes
ENVST 281 Topics in Environmental Studies (when taught with arts and humanities focus and approved by the chair)
ENVST 381 Advanced Research Topics in Environmental Studies (when taught with arts and humanities focus and approved by the chair)
HIST 245 Environmental History of Latin America
HIST 275 Environmental History
PHIL 257 Environmental Ethics
ENGL 276 Literature and the Environment
REL 278 Christian Ethics and Ecological Justice

Electives: Students choose one additional environmental studies courses from among those listed above for the major. This may (but need not) include the senior seminar. Elective courses from other departments must have a significant component that addresses environmental concerns, but they need not have environmental issues as their exclusive focus. For some electives, students may be required to negotiate specific assignments with the instructor and the chair to receive credit toward the concentration. Concentrators may not count both REL 278 and PHIL 257.

Total Credits: 6

1 Either BIO 226 (Environmental Science in Australia) or BIO 261 can count for this requirement.

Courses

Because of their interdisciplinary character, environmental studies courses are quite appropriate for students seeking to fulfill general education requirements. The introductory course, ENVST 137, serves many students in the IST area, and other environmental studies courses generally fulfill one or more of the general education requirements. Some students use the ENVST concentration to create an environmental focus to their general education experience.

Courses

ENVST 123: Geophysics: Perspectives on the Dynamic Earth
This course considers a variety of topics in earth and environmental science. Beginning with the origin of the earth and planetary system, the course examines crustal evolution and plate tectonics, geologic resources and hazards, and the relationship of these surface phenomena to processes occurring in the earth’s interior. It concludes with a study of the oceans, the atmosphere, the earth’s climate system, and environmental change. Offered annually. Counts toward environmental studies major (all emphases) and concentration. **Prerequisite:** proficiency in algebra and geometry.

ENVST 137: Introduction to Environmental Studies
This interdisciplinary course uses basic concepts of environmental science to explore global environmental issues. Topics are drawn from recent texts and current periodic literature, and participants will recognize many of the themes from coverage in the media. Because most environmental problems involve issues beyond the sciences, the class examines the economic, political, and ethical dimensions of environmental questions and environmental decision-making. Offered each semester.

ES/PS 201: Topics in Global Environmental Politics
Population growth, industrialization, and the consumption of fossil fuels have increased global environmental problems. The course examines the ways in which nation-states and/or international institutions have addressed these environmental concerns. Depending on the instructor, the focus of the course is either the environmental problems of a particular area (e.g., Latin America, Russia or Asia) or a broader global arena (e.g., international institutions and the environment). Offered alternate years.
**ENVST 202: The Culture of Nature**
This American environmental history course explores the social construction of nature in the 21st century, looking at the roots (both natural and cultural) of contemporary environmental issues. To figure out what nature means to us now, students study the history of stuff, the culture of grasslands and lawns, the changing character of the city and the country, the nature of the suburbs, the conservation and preservation movements, different energy ecologies, the nature of TV, the contemporary environmental movement, and alternative ecological practices. They also use the St. Olaf campus as a case study of environmental design. Offered annually. Counts toward American studies major.

**BI/ES 226: Conservation Biology**
Conservation biology focuses on the study of biological diversity. Students examine why people should be concerned about the number and types of species on earth, what factors threaten the survival of species, and how people can conserve them. Using principles of ecology and evolution, with input from other disciplines, students gain a better understanding of the impact of humans on biodiversity and the importance of responsible environmental decision-making. Offered annually.

**Prerequisite:** one natural science course.

**ENVST 232: Environmental Policy and Regulation**
This course analyzes environmental regulation in the United States with respect to its historical evolution, its ability to achieve environmental targets, its efficiency or cost-effectiveness, its distributional impact on jobs, people, and industries across the country, and its international ramifications. Offered annually. Counts toward management studies concentration.

**Prerequisite:** an introductory science course.

**ENVST 237: Integration and Application in Environmental Studies**
Framed by a focus on a contemporary environmental topic, the course attends to the nature of environmental inquiry, one’s perspectives and values, and how to use one’s knowledge and skills for personal, civic and work-related roles. Individual and team projects connected to community needs teach students how to think and work across the department’s three areas of emphasis in an experiential learning framework. Offered each semester. Counts toward environmental studies major and concentration.

**Prerequisite:** ENVST 137, at least one course in two of the three areas of emphasis, and a declared environmental studies major or concentration.

**ENVST 245: Global Climate Change**
This course is an interdisciplinary seminar on climate throughout the earth’s history, including recent changes caused by humankind. It examines the climate system in the larger framework of planetary evolution and explores evidence from the geologic record for climates of the past. Using current scientific literature, students investigate causes of climate change and consider scenarios for future climate based on models incorporating alternative global development strategies. Offered annually.

**Prerequisites:** sophomore standing; one level I biology, chemistry, or physics course or ENVST 137 strongly encouraged.

**ENVST 245: Remote Sensing and Geographic Information Systems**
Remote sensing and GIS are increasingly used to address basic and applied questions in the environmental sciences and a host of other disciplines. Students survey available remote sensing image types and learn to process (ground-truthing, GPS, scanning, digitizing) and interpret remotely sensed images. They also learn theory and practice of geographic information systems (basic cartography and spatial statistics). A weekly three-hour laboratory is required. Offered annually.

**Prerequisites:** ENVST 137 or a level I course in biology, chemistry, or physics.

**ENVST 270: Nature and American Landscapes**
This seminar-style course develops students’ abilities to reflect on Americans’ encounters with their landscape traditions. Students study ways Americans have built on the land and have worshipped and represented nature in paintings, photographs, and advertisements. Students learn to read landscapes to discover how artistically, religiously, and ecologically important the landscape tradition has been in the United States and to become thoughtful viewers and creators of landscapes. Counts toward majors: art, American studies, art history, and environmental studies. Counts toward concentrations: American studies and environmental studies. Offered annually.

**ES/PS 276: Environmental Politics**
Analysis of environmental policy includes the politics of agenda setting, policy selection and program implementation, and the effects of policy outcomes. Offered annually. Counts toward American studies major and management studies concentration.
AS/ES 277: Environmental Sustainability in Japan (abroad)
Students investigate community-based approaches to environmental sustainability during this Interim course taught at the Asian Rural Institute (ARI) in northern Japan. Students explore how ARI builds on local Japanese resources to support its mission of training rural leaders from developing countries in organic agricultural practices. Activities include field trips, discussions, and symposia with Japanese students, as well as hands-on participation in the daily food life at ARI. Counts toward Asian studies and Environmental studies majors and concentrations and Japan studies concentration. Offered during Interim.
Prerequisites: preference given to students with prior coursework in either Asian Studies or Environmental Studies.

ENVST 281: Topics in Environmental Studies
Students study topics related to the environment. Topics vary from year to year at the discretion of the instructor. Topics may include Environment and Theology, Environmental Justice, Ecotourism, and Literature of the Poles. Class is largely discussion-based but may include a lab/fieldwork component depending on the topic. May be repeated if topic is different. Offered annually.

BI/ES 286: Tropical Ecology and Sustainable Land Use in Costa Rica (abroad)
This course offers students the opportunity to study first-hand the most diverse ecosystems on earth. In this intensive field-oriented course students explore lowland rainforest, montane forest, dry forest, and coastal and agricultural ecosystems through projects and field trips. Students read and discuss texts and primary literature specific to ecology, evolution, conservation, and agricultural practices of each area, and keep reflective journals. Offered during Interim in alternate years.
Prerequisite: one science course.

ENVST 294: Academic Internship
ENVST 298: Independent Study

BI/ES 350: Biogeochemistry: Theory and Application
The study of global change and human environmental impacts requires students to link concepts from biology, chemistry, and physics. Students investigate these links by exploring current theories in biogeochemistry, with an emphasis on understanding the feedback between physical and ecological processes and the coupling of multiple element cycles. Laboratory activities focus on a practical exploration of the methods biogeochemists use, including experience with a variety of instruments. Counts toward mathematical biology concentration.
Prerequisite: any level II biology, chemistry, or physics course or permission of instructor.

ENVST 381: Advanced Research Topics in Environmental Studies
Students study topics related to the environment. Topics vary from year to year at the discretion of the instructor. Recent topics offered include Ecosystem Research, Landscape Art, Imaging Environmentalism, and Landscape and Regional Change in the Arctic.

ENVST 394: Academic Internship
ENVST 396: Directed Undergraduate Research
This course provides a comprehensive research opportunity, including an introduction to relevant background material, technical instruction, identification of a meaningful project, and data collection. The topic is determined by the faculty member in charge of the course and may relate to his/her research interests. Offered based on department decision. May be offered as a 1.00 credit course or .50 credit course.
Prerequisite: determined by individual instructor.

ENVST 398: Independent Research
ENVST 399: Seminar in Environmental Studies
A capstone seminar for seniors in the major and concentration, this course involves intensive study of special topics utilizing student research projects and presentations. An academic civic engagement project relies on the expertise gained from their environmental studies courses and work in other majors as applicable. Topics relate to a local or regional environmental issues, providing participants with opportunities to interact with government and regulatory agencies and community groups. Offered spring semester.
Prerequisites: ENVST 137, senior status, or permission of the environmental studies chair and instructor.

Environmental Studies Courses in Other Departments

Natural Sciences
BIO 224 Marine Biology (Environmental Science in Australia & New Zealand)
BIO 226 Terrestrial Ecology (Environmental Science in Australia & New Zealand)
BIO 253 Water in Morocco: Precious, Precarious, and Problematic
BIO 261 Ecological Principles
BIO 371 Field Ecology
BIO 391 Selected Topics (when taught with environmental focus)
CHEM 124 A Matter of the Environment with Lab
CHEM 248 Organic Chemistry II
CHEM 254 Synthesis Laboratory II (0.25)
CHEM 255 Analytical Chemistry
CHEM 256 Analytical Laboratory (0.25)
CHEM 391 Selected Topics in Chemistry (when taught as Environmental Chemistry)
STAT 110 Principles of Statistics
STAT 212 Statistics for the Sciences
STAT 272 Statistical Modeling

Social Sciences
ECON 121 Principles of Economics
ECON 242 Environmental Economics
ECON 243 Economic Development
ECON 263 Statistics for Economics
ID 234 Human Geography of the Middle East
PSCI 220 Analyzing Politics and Policies
PSCI 221 Environmental Policy (Environmental Science in Australia & New Zealand)
PSYCH 227 Environmental Psychology at Rocky Mountain National Park (off-campus)
PSYCH 230 Research Methods in Psychology
SOAN 222 Cultural Anthropology (Environmental Science in Australia & New Zealand)
SOAN 247 Disasters
SOAN 297 Topics in Sociology and Anthropology (when taught as Environmental Anthropology)
SOAN 371 Foundations of Social Science Research: Quantitative Methods

**Arts and the Humanities**
ART 261 O’Keeffe’s Art and New Mexico (off-campus)
ENGL 276 Literature and the Environment
GERM 276 Green Germany
HIST 245 Environmental History of Latin America
HIST 275 Environmental History
NORW 224 Topics in Contemporary Nordic Literature: A Window on Society (when taught with environmental focus)
PHIL 257 Environmental Ethics
REL 278 Christian Ethics and Ecological Justice

**Faculty**

**Chair, 2018-2019**
Paul T. Jackson
Associate Professor of Chemistry and Environmental Studies
green chemistry; environmental chemistry; water quality; sustainability

Mark Allister
Professor of English and Environmental Studies
American literature; environmentalism; popular music; men’s studies; American studies

Joshua R. Anderson
Visiting Assistant Professor of Political Science and Environmental Studies
American politics; political philosophy; history of science

Diane K. Angell
Associate Professor of Practice in Biology
conservation biology; ecology; evolutionary biology

Seth I. Binder
Assistant Professor of Economics and Environmental Studies
environmental and natural resource economics and policy; development economics; applied microeconomics; environmental economics

Anne M. Gothmann
Assistant Professor of Environmental Studies and Physics

Daniel J.B. Hofrenning
Professor of Political Science
American politics; religion and politics; parties and elections; public policy

Meredith Holgerson
Assistant Professor of Environmental Studies and Biology

Kiara Jorgenson
Assistant Professor of Religion and Environmental Studies

Rebecca P. Judge
Professor of Economics, Associate Dean of Social Sciences
environmental economics; public policy

Ben Kopec
Visiting Assistant Professor of Environmental Studies

Donna McMillan
Associate Professor of Psychology
clinical psychology; personality psychology; environmental psychology; positive psychology

Seth E. Peabody
Visiting Assistant Professor of German
German film; environmental humanities; German literature around 1800

Matthew Rohn
Associate Professor of Art and Art History and Environmental Studies
19th- and 20th-century art; American culture; gender and multicultural studies; social justice; visual ecocriticism

Kathleen L. Shea
Professor of Biology and Environmental Studies, Curator of Natural Lands
plant ecology and evolution; restoration ecology; agroecology

Charles Taliaferro
Professor of Philosophy
philosophy of religion; ethics; philosophy of mind; aesthetics

Katherine Tegtmeier Pak
Associate Professor of Political Science and Asian Studies
Asian politics; comparative democracy; immigration; citizenship; human rights

Charles E. Umbanhowar (on leave fall and Interim)
Professor of Biology and Environmental Studies
prairie ecology; botany; paleoecology; fire ecology; biogeochemistry