Environmental Studies

Director: Stefan Schnitzer, Ph.D.

The major and minor offer interdisciplinary studies on issues related to the environment. Students take core and elective courses that address the environment from a wide range of fields, including anthropology, biology and ecology, chemistry and physics, economics, history, political science, sociology, theology and ethics. The major is ideal for students who intend to pursue a career that focuses on the environment (e.g., environmental management, restoration, mitigation, consulting, policy, economics), or who intend to pursue graduate or professional school in environmental science, law, business, policy, economics, philosophy, theology or ethics.

The specific learning outcomes for graduates of the Environmental Studies major are:

- understand the basic organization of ecosystems and their response to environmental factors
- quantitatively analyze scientific and economic data related to the environment
- have a fundamental understanding of the social, economic, political and historical components that influence the decision-making process with respect to the environment
- understand philosophical and ethical aspects of environmental issues
- gain practical experience working on environmental issues via internships
- understand and synthesize the study of the environment from the perspective of multiple disciplines

Environmental Studies Major

The goal of the major is to provide a comprehensive and in-depth education in environmental studies, which includes the study of the ecology of natural ecosystems and the processes by which humans influence, exploit, evaluate, value, mitigate and restore their environment. Students learn to understand and address pressing environmental issues through an interdisciplinary approach. Students complete 16 required courses (48-49 credits) and two elective courses (6-7 credits) that cover subjects from the sciences, social sciences, humanities and engineering.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Required courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 1001</td>
<td>General Biology 1</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 1002</td>
<td>General Biology 2</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 3400</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 1009</td>
<td>Earth and Environmental Physics</td>
<td>3-4</td>
</tr>
<tr>
<td>or CHEM 1080</td>
<td>Chemistry in the World</td>
<td></td>
</tr>
<tr>
<td>INES 4987</td>
<td>Environmental Studies: Applying the Internship Experience (or approved research experience)</td>
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<tr>
<td>INES 4997</td>
<td>Capstone in Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>Required Experimental Biology course - choose one of the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BIOL 4402</td>
<td>Experimental Ecology and Field Biology</td>
<td></td>
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<tr>
<td>or BIOL 4403</td>
<td>Tropical Ecology in Panama</td>
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</tr>
<tr>
<td>or BIOL 4802</td>
<td>Experimental Microbiology</td>
<td></td>
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<tr>
<td>Required Ethics course - choose one of the following:</td>
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<td>3</td>
</tr>
<tr>
<td>PHIL 3350</td>
<td>Philosophy of the Environment</td>
<td></td>
</tr>
<tr>
<td>or THEO 4440</td>
<td>Foundations of Ecological Ethics</td>
<td></td>
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<tr>
<td>Required Statistics course - choose one of the following:</td>
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<td>3</td>
</tr>
<tr>
<td>MATH 1700</td>
<td>Modern Elementary Statistics</td>
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</tr>
<tr>
<td>or MATH 4720</td>
<td>Statistical Methods</td>
<td></td>
</tr>
<tr>
<td>or MATH 4740</td>
<td>Biostatistical Methods and Models</td>
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<tr>
<td>Required Economics courses</td>
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</tr>
<tr>
<td>ECON 1103</td>
<td>Principles of Microeconomics</td>
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<tr>
<td>ECON 1104</td>
<td>Principles of Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 4016</td>
<td>Environmental and Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>Required Political Science courses</td>
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<td>6</td>
</tr>
<tr>
<td>POSC 2601</td>
<td>International Politics</td>
<td></td>
</tr>
<tr>
<td>or POSC 2201</td>
<td>American Politics</td>
<td></td>
</tr>
<tr>
<td>POSC 4351</td>
<td>Environmental Politics and Policy</td>
<td></td>
</tr>
<tr>
<td>Required Environment and Society courses</td>
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<td>6</td>
</tr>
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</table>
Environmental Studies

ANTH 2203 Human Geography
SOCI 3720 Environment and Society
or SOCI 3750 Food, Water and Society
or HIST 3800 Environmental History: Ecology and Society in the Modern World

Elective courses - choose two not previously completed courses from the following: ¹

Environment and Society
COMM 4330 Health, Science and Environmental Communication
ENGL 3775 Literature and Place
ENGL 4765 Material Cultures
HIST 3800 Environmental History: Ecology and Society in the Modern World
SOCI 3720 Environment and Society
or SOCI 3750 Food, Water and Society
SOWJ 4700 Global Aid and Humanitarianism

Environmental Science and Anthropology
ANTH 1201 Introduction to Biological Anthropology
or ANTH 2201 Human Evolutionary Process
ANTH 3153 Demography
ANTH 4144 The Rise of Agriculture
ANTH 4245 Archaeology of Complex Societies
ANTH 4316 Culture Change and Development
BIOL 3404 Evolutionary Biology
BIOL 4401 Advanced Ecology
BIOL 4406 Plant Biology
BIOL 4410 Conservation Biology
BIOL 4801 Microbiology
CHEM 1080 Chemistry in the World
or PHYS 1009 Earth and Environmental Physics
PHYS 1007 Survey of Meteorology

Political Science
POSC 4216 American Public Policy
POSC 4221 Interest Group Politics
POSC 4331 Politics and Regulation
POSC 4661 The Political Economy of Development

Economics
ECON 3003 Intermediate Microeconomic Analysis
ECON 4012 Urban and Regional Economics
ECON 4047 Development Economics

Engineering
CEEN 3510 Environmental Engineering
CEEN 4515 Environmental Chemistry
CEEN 4550 Water Resources Planning and Management
CEEN 4715 Sustainable Engineering

Total Credit Hours: 54-56

¹ Additional courses may be counted as electives with permission of the program director.

Environmental Studies Minor

The goal of the minor is to provide an overview of environmental studies, which includes the study of the ecology of natural ecosystems and the processes by which humans influence, exploit, evaluate, value, mitigate and restore their environment. Students learn to understand and address pressing environmental issues through an interdisciplinary approach. Students complete three required courses (9-10 credits) and four elective courses (12-13 credits) that cover subjects from the sciences, social sciences and humanities.
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<td>or CHEM 1080</td>
<td>Chemistry in the World</td>
<td></td>
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Elective courses (choose one from each category, excluding those completed as required courses) and a fourth from any category 12-13

**Category 1: Environmental Science**

- BIOL 4401 Advanced Ecology
- BIOL 4402 Experimental Ecology and Field Biology
- BIOL 4403 Tropical Ecology in Panama
- BIOL 4410 Conservation Biology
- BIOL 4802 Experimental Microbiology
- CEEN 3510 Environmental Engineering
- CEEN 4515 Environmental Chemistry
- CEEN 4550 Water Resources Planning and Management
- CEEN 4715 Sustainable Engineering
- CHEM 1080 Chemistry in the World
- or PHYS 1009 Earth and Environmental Physics
- PHYS 1007 Survey of Meteorology

**Category 2: Anthropology/Sociology**

- ANTH 2203 Human Geography
- ANTH 3153 Demography
- ANTH 4316 Culture Change and Development
- SOCI 3720 Environment and Society
- SOCI 3750 Food, Water and Society
- SOWJ 4700 Global Aid and Humanitarianism

**Category 3: Economics/Policy/Humanities**

- COMM 4330 Health, Science and Environmental Communication
- ECON 4016 Environmental and Natural Resource Economics
- ECON 4047 Development Economics
- HIST 3800 Environmental History: Ecology and Society in the Modern World
- PHIL 3350 Philosophy of the Environment
- POSC 4216 American Public Policy
- POSC 4351 Environmental Politics and Policy
- POSC 4661 The Political Economy of Development
- THEO 4440 Foundations of Ecological Ethics

**Total Credit Hours:** 21-23