Environmental Science

Director: Stefan Schnitzer, Ph.D.

Environmental Science integrates a fundamental understanding of the ecology of natural ecosystems and the processes by which humans influence, exploit, evaluate, conserve and restore their environment. The main goals for interdisciplinary major are to develop new knowledge in environmental science, educate students in the fundamental ecological and physical processes that govern the environment, train leaders who can identify and solve complex environmental problems and to educate students to help restore and sustain a healthy planet using an evidence-based approach.

Environmental Science Major

The goal of the major is to provide a comprehensive and in-depth education in environmental science, which includes the study of the ecology of natural ecosystems and the processes by which humans understand, influence, exploit, mitigate, share, conserve and restore their environment. Students complete 22 courses (68-69 credit hours) encompassing required and elective courses in the natural sciences and engineering, field and laboratory courses, internships and laboratory research experience and a capstone seminar.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Introductory Course</td>
<td>3</td>
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<tr>
<td>BIOL 1420</td>
<td>Introduction to Environmental Biology</td>
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</table>

| Foundational Courses                                      | 29    |
| BIOL 1001 | General Biology 1                                 |       |
| BIOL 1002 | General Biology 2                                 |       |
| CHEM 1001 | General Chemistry 1                               |       |
| CHEM 1002 | General Chemistry 2                               |       |
| COSC 1010 | Introduction to Software Development              |       |
| COSC 3570 | Introduction to Data Science                      |       |
| MATH 1410 | Calculus for the Biological Sciences              |       |
| or MATH 1450 | Calculus 1                       |       |
| MATH 4720 | Biostatistical Methods and Models                 |       |
| or MATH 4740 | Biostatistical Methods and Models                  |       |
| PHYS 1009 | Earth and Environmental Physics                   |       |

| Content Area and Advanced Core Courses                   | 27    |
| BIOL 3400 | Ecology                                          |       |
| BIOL 3404 | Evolutionary Biology                            |       |
| BIOL 4401 | Advanced Ecology                                 |       |
| BIOL 4410 | Conservation Biology                            |       |
| PHIL 3350 | Philosophy of the Environment                    |       |
| or THEO 4440 | Foundations of Ecological Ethics                 |       |
| POSC 4351 | Environmental Politics and Policy                |       |

Field/laboratory courses. Choose two of the following:

| BIOL 2001 | Principles of Biological Investigation          |       |
| BIOL 4402 | Experimental Ecology and Field Biology           |       |
| BIOL 4403 | Tropical Ecology in Panama                       |       |
| or BIOLI 4403 | Tropical Ecology in Panama                     |       |
| BIOL 4802 | Experimental Microbiology                        |       |
| BIOL 4956 | Laboratory Research Project in Biological Sciences |       |
| INES 4987 | Environmental Studies: Applying the Internship Experience |       |

Capstone Course

| INES 4997 | Capstone in Environmental Studies                |       |

Elective Courses

Choose two of the following:

<p>| ANTH 1201 | Introduction to Biological Anthropology          | 9-10  |</p>
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<tr>
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<tbody>
<tr>
<td>ANTH 2201</td>
<td>Human Evolutionary Process</td>
</tr>
<tr>
<td>ANTH 2203</td>
<td>Human Geography</td>
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<tr>
<td>ANTH 3153</td>
<td>Demography</td>
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<tr>
<td>ANTH 4144</td>
<td>The Rise of Agriculture</td>
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<td>ANTH 4245</td>
<td>Archaeology of Complex Societies</td>
</tr>
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<td>ANTH 4316</td>
<td>Culture Change and Development</td>
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<tr>
<td>ECON 4016</td>
<td>Environmental and Natural Resource Economics</td>
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<tr>
<td>ENGL 3775</td>
<td>Literature and Place</td>
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<tr>
<td>ENGL 4453</td>
<td>Romanticism and Nature</td>
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<tr>
<td>ENGL 4765</td>
<td>Material Cultures</td>
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<tr>
<td>ENGL 4825</td>
<td>Native American / Indigenous Literatures</td>
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<tr>
<td>SOCI 3720</td>
<td>Environment and Society</td>
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<tr>
<td>SOCI 3750</td>
<td>Food, Water and Society</td>
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<td>SPAN 4320</td>
<td>Latin American and Latinx Contemporary Issues</td>
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<tr>
<td>BIOL 4402</td>
<td>Experimental Ecology and Field Biology 3</td>
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<tr>
<td>BIOL 4403</td>
<td>Tropical Ecology in Panama 3</td>
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<tr>
<td>BIOL 4406</td>
<td>Plant Biology</td>
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<tr>
<td>BIOL 4801</td>
<td>Microbiology</td>
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<td>BIOL 4802</td>
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<td>Laboratory Research Project in Biological Sciences 3</td>
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<tr>
<td>CEEN 3510</td>
<td>Environmental Engineering</td>
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<tr>
<td>CEEN 4145</td>
<td>Advanced Strength and Applied Stress Analysis</td>
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<tr>
<td>CEEN 4550</td>
<td>Water Resources Planning and Management</td>
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<td>CEEN 4715</td>
<td>Sustainable Engineering</td>
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<tr>
<td>COSC 1020</td>
<td>Object-Oriented Software Design</td>
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<tr>
<td>COSC 4610</td>
<td>Data Mining</td>
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<tr>
<td>INES 4987</td>
<td>Environmental Studies: Applying the Internship Experience 3</td>
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<tr>
<td>PHYS 1007</td>
<td>Survey of Meteorology</td>
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<tr>
<td>PHYS 1008</td>
<td>Astronomy and Space Physics</td>
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**Total Credit Hours:** 68-69

1. At least 3 credit hours must be completed to fulfill requirement.
2. Other appropriate courses may be completed as electives with the approval of the program director.
3. May be completed as an elective only if not completed as a content area and advanced core course.