Environmental Sciences, BA

Requirements

The Bachelor of Arts with a major in environmental sciences requires a minimum of 120 s.h., including a minimum of 63 s.h. of work for the major. 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 also must complete the College of Liberal Arts and Sciences GE CLAS Core; some courses required for the major in environmental sciences may be used to satisfy GE CLAS Core requirements.

Students complete requirements in five areas: science and mathematics foundation; environmental sciences foundation; environmental sciences field study; environmental sciences policy courses; and environmental sciences track courses.

The science and mathematics foundation develops fundamental skills and comprehension in biology, chemistry, geology, mathematics, and statistics. The environmental sciences foundation includes an introductory course in environmental science and additional courses that focus on the geomorphic and environmental processes that shape the earth’s surface, the ecological factors that influence the distribution and abundance of organisms, and a choice of one course that deals with remote sensing techniques or with the use of geographic information technologies. The environmental sciences field study gives students hands-on experience with methods of analysis and interpretation of natural systems/organisms.

Each of the program’s four tracks focuses on areas of specialization within environmental sciences:

- biosciences (green) track—biological systems and ecological approaches;
- chemical sciences (yellow) track—environmental systems and chemistry;
- geosciences (brown) track—earth materials and surficial geologic processes; and
- hydrosciences (blue) track—hydrogeology and hydrogeologic systems, and water chemistry.

Students select one course from each of the four tracks in order to develop breadth of understanding and skill in these areas.

The BA in environmental sciences requires the following coursework.

### Science and Mathematics Foundation

Students must complete at least 27 s.h. of coursework, as follows.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL:1411</td>
<td>Foundations of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:1412</td>
<td>Diversity of Form and Function</td>
<td>4</td>
</tr>
<tr>
<td>CHEM:1110</td>
<td>Principles of Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM:1120</td>
<td>Principles of Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>EES:1050</td>
<td>Introduction to Geology</td>
<td>4</td>
</tr>
</tbody>
</table>

### Environmental Sciences Foundation

Students must complete at least 15 s.h. of coursework, as follows.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS:1085/</td>
<td>Fundamentals of Environmental Science</td>
<td>4</td>
</tr>
<tr>
<td>EES:1085</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVS:2010/</td>
<td>Interdisciplinary Environmental Seminar</td>
<td>1</td>
</tr>
<tr>
<td>EES:2010/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG:2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVS:2673/</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL:2673</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVS:3010/</td>
<td>Interdisciplinary Environmental Seminar</td>
<td>1</td>
</tr>
<tr>
<td>EES:3010/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG:3003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVS:3020/</td>
<td>Earth Surface Processes</td>
<td>3</td>
</tr>
<tr>
<td>EES:3020/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG:3020/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG:2050</td>
<td>Foundations of GIS</td>
<td>4</td>
</tr>
<tr>
<td>GEOG:3500</td>
<td>Introduction to Environmental Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>IGPI:3500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Environmental Sciences Field Study

Students must complete at least 3 s.h. from the following.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS:3095</td>
<td>Field Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ENVS:3096</td>
<td>Winter Ecology</td>
<td>2</td>
</tr>
<tr>
<td>ENVS:3097</td>
<td>Introduction to Bird Study</td>
<td>2</td>
</tr>
<tr>
<td>ENVS:3230</td>
<td>Special Topics (must include field component)</td>
<td>1-4</td>
</tr>
<tr>
<td>EES:2831</td>
<td>Geologic Field Methods</td>
<td>3</td>
</tr>
<tr>
<td>EES:4680</td>
<td>Field Methods in Hydrologic Science</td>
<td>3</td>
</tr>
<tr>
<td>GEOG:4010</td>
<td>Field Methods in Physical Geography</td>
<td>3</td>
</tr>
<tr>
<td>IALL:3103</td>
<td>Aquatic Ecology</td>
<td>4</td>
</tr>
<tr>
<td>IALL:3117</td>
<td>Ecology and Systematics of Diatoms</td>
<td>2,4</td>
</tr>
<tr>
<td>IALL:3126</td>
<td>Ornithology</td>
<td>4</td>
</tr>
</tbody>
</table>

Other Lakeside Laboratory courses (prefix IALL) may be approved in consultation with an environmental sciences advisor.

### Environmental Sciences Policy

Students must complete at least 6 s.h. from the following list.
Environmental Sciences, BA

Course # | Title | Hours
--- | --- | ---
BIOL:1260 | Plants and Human Affairs | 3
ECON:3625/ URP:3135 | Environmental and Natural Resource Economics | 3
GEOG:1070 | Contemporary Environmental Issues | 3
GEOG:2910 | The Global Economy | 3
GEOG:2930 | Water Resources | 3
GEOG:3760/ GHS:3760 | Hazards and Society | 3
GEOG:4770/ AFAM:4770/ GHS:4770 | Environmental Justice | 3

Environmental Sciences Track Courses

Students must complete one course from each of the following four lists (at least 12 s.h.). They may not use any course to satisfy more than one requirement.

Biosciences (Green) Track

Course # | Title | Hours
--- | --- | ---
One of these:
BIOL:1261 | Introduction to Botany | 4
BIOL:2246 | Entomology Lab | 4
EES:3070 | Marine Ecosystems and Conservation | 3
EES:3220 | Evolution of the Vertebrates | 4
GEOG:2374/ BIOL:2374 | Biogeography | 3
GEOG:2950 | Environmental Conservation | 4
GEOG:3315 | Ecosystem Ecology | 3
GEOG:3350 | Urban Ecology | 3
IALL:3117 | Ecology and Systematics of Diatoms | 4

Other Lakeside Laboratory courses (prefix IALL) may be approved in consultation with an environmental sciences advisor

Chemical Sciences (Yellow) Track

Course # | Title | Hours
--- | --- | ---
One of these:
BMB:3110 | Biochemistry | 3
CEE:4150/CBE:4420 | Environmental Chemistry | 3
CEE:5440 | Foundations of Environmental Chemistry and Microbiology | 3
CHEM:2210 | Organic Chemistry I | 3
CHEM:3120 | Spectroscopy and Separations | 3
CHEM:3250 | Inorganic Chemistry | 3
CHEM:4431 | Chemical Thermodynamics | 3
CHEM:4873 | Atmospheric and Environmental Chemistry | 3

Geosciences (Brown) Track

Course # | Title | Hours
--- | --- | ---
One of these:
ENVS:3110 | Chemical Evolution of the Oceans | 3
EES:3110 | Earth’s Climate System | 3
EES:2200/ ENVS:2200 | Historical Geology | 4
EES:2310/ GEOG:2310 | Introduction to Climatology | 3
EES:2410 | Mineralogy | 4
EES:3070 | Marine Ecosystems and Conservation | 3
EES:3300 | Sedimentary Geology | 4
EES:3360/ GEOG:3360 | Soil Genesis and Geomorphology | 3
EES:3380/CEE:3328 | Fluvial Geomorphology | 3
EES:3390 | Integrated Watershed Analysis | 3
EES:3500 | Igneous and Metamorphic Petrology | 4
EES:3840 | Structural Geology | 4
EES:4490 | Elements of Geochemistry | 3
EES:4520 | Isotope Geochemistry | 3
EES:4720 | Paleoclimatology | 3
EES:4790 | Applied Environmental Geology | 3

Hydrosciences (Blue) Track

Course # | Title | Hours
--- | --- | ---
One of these:
CEE:3371 | Principles of Hydraulics and Hydrology | 3
EES:3300 | Sedimentary Geology | 4
EES:3390 | Integrated Watershed Analysis | 3
EES:4490 | Elements of Geochemistry | 3
EES:4630 | Hydrogeology | 4
EES:4640 | Contaminant Hydrogeology | 3
EES:4790 | Applied Environmental Geology | 3
GEOG:4470 | Ecological Climatology | 3

Teacher Licensure

Students interested in teaching in elementary and/or secondary schools should seek admission to the Teacher Education Program (TEP) in the College of Education.

To qualify for licensure in secondary teaching, students in the TEP complete a degree in education as well as a related College of Liberal Arts and Sciences degree. See Apply on the College of Education website for details on requirements and deadlines for applying to the College of Education and about TEP choices of majors leading to licensure.