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>
<tr>
<td>MATH:1460</td>
<td>Calculus for the Biological Sciences</td>
<td>4</td>
</tr>
<tr>
<td>MATH:1850</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>STAT:3510</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT:4200</td>
<td>Statistical Methods and Computing</td>
<td>3</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>ENVS:2010</td>
<td>Interdisciplinary Environmental Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ENVS:2673</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ENVS:3010</td>
<td>Interdisciplinary Environmental Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ENVS:3020</td>
<td>Earth Surface Processes</td>
<td>3</td>
</tr>
<tr>
<td>GEOF:2050</td>
<td>Foundations of GIS</td>
<td>4</td>
</tr>
<tr>
<td>GEOF:3500</td>
<td>Introduction to Environmental Remote Sensing</td>
<td>3</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>GEOF:4010</td>
<td>Field Methods in Physical Geography</td>
<td>3</td>
</tr>
</tbody>
</table>
Environmental Sciences, BA

IALL:3103 Aquatic Ecology 4
IALL:3117 Ecology and Systematics of Diatoms 2,4
IALL:3126 Ornithology 4

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.

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/ EES:3110  Chemical Evolution of the Oceans 3
EES:2020/ ENVS:2020  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/CHEM: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.