Environmental Studies

Faculty

Kelly Grey Carlisle, Ph.D., Associate Professor, English
Greg Hazleton, Ph.D., Visiting Assistant Professor
Glenn Kroeger, Ph.D., Associate Professor, Geosciences
Kelly Lyons, Ph.D., Professor, Biology
Jennifer P. Mathews, Ph.D., Professor, Sociology and Anthropology
Shana McDermott, Ph.D., Assistant Professor, Economics
Judith Norman, Ph.D., Professor, Philosophy
Richard K. Reed, Ph.D., Professor, Sociology and Anthropology
David Ribble, Ph.D., Professor, Biology; Director
Heather Sullivan, Ph.D., Professor, Modern Languages and Literatures
Benjamin Surpless, Ph.D., Associate Professor, Geosciences
Elizabeth Ward, M.F.A., Professor, Art and Art History

Overview

Environmental Studies is an interdisciplinary major that focuses on the environment and humans’ relationship with it. The program incorporates a variety of approaches in the arts and humanities, the natural sciences, social analysis, and social policy. Students may choose an Environmental Studies major to explore the environment from a scientific perspective or to prepare for a career in one of the many fields that seek to monitor, shape, or interpret our relationship with it. Environmental Studies majors have extensive interaction with the natural world in research, class projects, and internships.

Requirements

- The Major
- The Minor
- Honors in Environmental Studies
- ESAC Certification: "Green Leaf" Courses for Environment/Sustainability Across the Curriculum (ESAC)
The Major

The requirements for the degree of Bachelor of Arts with a major in Environmental Studies are at least 43 credit hours as follows:

I. The Introductory Course (3 credit hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI 1301</td>
<td>Introduction to the Environment</td>
</tr>
</tbody>
</table>

II. Fundamental skills (23-24 credit hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 2357</td>
<td>Humans and the Environment</td>
</tr>
<tr>
<td>BIOL 1311</td>
<td>Integrative Biology</td>
</tr>
<tr>
<td>BIOL 1111</td>
<td>Introductory Biology Laboratory</td>
</tr>
<tr>
<td>ECON 1311</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>ECON 3330</td>
<td>Economics and the Environment (also listed as URBS 3330)</td>
</tr>
<tr>
<td>GEOS 1409</td>
<td>Earth’s Environmental System (with lab)</td>
</tr>
<tr>
<td>PHIL 1350</td>
<td>Environmental Ethics</td>
</tr>
<tr>
<td>URBS 3330</td>
<td>Economics and the Environment (also listed as ECON 3330)</td>
</tr>
</tbody>
</table>

And one of the following (3-4 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 2495</td>
<td>Outdoor Studio</td>
</tr>
<tr>
<td>CMLT 2350</td>
<td>Science Fiction and the Environment</td>
</tr>
<tr>
<td>CMLT 2301</td>
<td>World Literature and the Environment</td>
</tr>
<tr>
<td>ENVI 3391</td>
<td>Environmental Literature</td>
</tr>
</tbody>
</table>

III. Area Concentration (16-22 credit hours):

Students must complete one of the following concentrations:

- Environmental Science
- Environmental Policy
- Environmental Arts and Humanities

A. Environmental Science (12-24 credit hours)

The Environmental Science concentration prepares students for graduate programs in environmental science and for careers in laboratory and field monitoring and evaluation of environmental data.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1318</td>
<td>General Chemistry</td>
</tr>
<tr>
<td>CHEM 1118</td>
<td>General Chemistry Laboratory</td>
</tr>
</tbody>
</table>

And Concentration Courses completing one of the following areas:

1. **Biology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL-2412</td>
<td>Cells, Systems, and their Environment</td>
</tr>
<tr>
<td>BIOL 3413</td>
<td>Genes, Phenotypes, and Evolutionary Dynamics</td>
</tr>
<tr>
<td>CHEM-2119</td>
<td>Laboratory Methods in Organic Chemistry</td>
</tr>
<tr>
<td>CHEM-2319</td>
<td>Organic Chemistry I</td>
</tr>
</tbody>
</table>

And 3 of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 2310</td>
<td>Human Evolution</td>
</tr>
<tr>
<td>BIOL 3434</td>
<td>Ecology</td>
</tr>
<tr>
<td>BIOL 4351</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>BIOL 3426</td>
<td>Vertebrate Biology</td>
</tr>
<tr>
<td>BIOL 3427</td>
<td>Plant Biology</td>
</tr>
<tr>
<td>BIOL 3420</td>
<td>Animal Behavior</td>
</tr>
</tbody>
</table>

2. **Geosciences (4 of the following):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 2400</td>
<td>Dynamic Earth</td>
</tr>
</tbody>
</table>

And 3 of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 2401</td>
<td>Earth History</td>
</tr>
<tr>
<td>GEOS 2304</td>
<td>Earth Surface Processes</td>
</tr>
<tr>
<td>GEOS 3408</td>
<td>GIS and Remote Sensing</td>
</tr>
<tr>
<td>GEOS 3310</td>
<td>Global Climate Change</td>
</tr>
<tr>
<td>GEOS 3400</td>
<td>Earth Materials</td>
</tr>
<tr>
<td>GEOS 3411</td>
<td>Hydrology</td>
</tr>
</tbody>
</table>

3. **Physics (4 of the following):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1309 or PHYS 1311</td>
<td>General Physics I</td>
</tr>
</tbody>
</table>
PHYS 1310 or PHYS 1312  General Physics II
PHYS 2311  Introduction to Biophysics
PHYS 3312  Geophysics
PHYS 3321  Statistical Physics and Thermodynamics
PHYS 3322  Classical Mechanics and Nonlinear Dynamics

4. Engineering (4 of the following):

ENGR 2311  Mass and Energy Balances
ENGR 2359  Fundamentals of Environmental Engineering
ENGR 3327  Thermodynamics I

One course from the courses listed above for the Environmental Science concentration in Biology, Geosciences, or Physics.

B. Environmental Policy: (18-19 credit hours)

The Environmental Policy concentration is intended for students seeking an interdisciplinary approach to the evaluation of environmental policy, environmental justice, and environmental issues. It prepares students for graduate programs in public policy and other social sciences and for careers in nonprofit, education, government, and consulting organizations.

ENVI 2301  Environmental Science Methods and Analysis

And 1 course from each of the following areas:

1. Analytical Approaches: Economics:

BUSN 3338  Government Regulation of Business (also listed as ECON 3338)
ECON 3323  Economics of the Government
ECON 3334  Urban Economics (also listed as URBS 3334)
ECON 3338  Government Regulation of Business (also listed as BUSN 3338)
URBS 3334  Urban Economics (also listed as ECON 3334)

2. Analytical Approaches: Political Science

PLSI 3313  Policy Analysis and the Policymaking Process
PLSI 3316  Urban Politics
PLSI-3366  Governance and Public Policy in Contemporary China

3. Perspectives: Case Studies I

ANTH 3367  South American Indigenous Peoples
ANTH 3464  Morality in the Marketplace
ANTH 4354  Seminar on Primatology

4. Perspectives: Case Studies II

ENVI 4309  Special Topics in Environmental Policy
SOCI 3340  Urban Geography
ANTH/SOC 3345  International Issues in Health and the Environment
SOCI 4362  Globalization and International Development

5. Applications:

ENVI 4395  Environmental Internship

C. Environmental Arts and Humanities (18 credit hours)

The Environmental Arts and Humanities concentration offers students the opportunity to develop their interpretive, expressive, and critical skills and talents in areas of art, literature, and the humanities in the context of environmental issues.

ENVI 2301  (Environmental Science Methods and Analysis)

And 5 courses from the following (* These classes may be taken as Concentration Courses if not included as a Required Foundation Course.):

ART 2495*  Outdoor Studio
ARTH 3452  Nineteenth-Century Architecture and Urbanism
ARTH 3354  Architecture of Mexico
ARTH 3464  Twentieth-Century Architecture and Urbanism
CMLT 2301*  World Literature and the Environment
CMLT 2350  Science Fiction and the Environment
ENGL 2303  American Literature: Colonization to 1900
ENGL 3365  Nineteenth-Century British Poetry
The Minor

The Environmental Studies minor is an interdisciplinary study of the Earth's environment and human interaction with that environment. The required courses address environmental issues from natural science, economic, and sociocultural perspectives. At least nine hours need to be upper-division courses. In addition, it is recommended that Environmental Studies Minors complete ENVI 4301, Senior Seminar in Environmental Studies.

Given the breadth of this minor, a significant overlap with a student's choice of Pathways courses is both expected and encouraged. To that end, courses that fulfill an understanding are indicated (*) in the following lists.

Requirements for the minor are listed below, including at least 12 hours of lower division and 9 hours of upper division courses.

I. Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI 1301*</td>
<td>Introduction to Environmental Studies</td>
</tr>
<tr>
<td>BIOL 1311*</td>
<td>Integrative Biology I</td>
</tr>
<tr>
<td>BIOL 1111</td>
<td>Introductory Biology Laboratory</td>
</tr>
<tr>
<td>ECON 1311*</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>GEOS 1409</td>
<td>Earth's Environmental Systems</td>
</tr>
<tr>
<td>GEOS 2400</td>
<td>Dynamic Earth</td>
</tr>
<tr>
<td>ECON 3333*</td>
<td>Economics and the Environment (also listed as URBS 3333)</td>
</tr>
</tbody>
</table>

II. One course from the following list (check catalog for prerequisites)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 3434</td>
<td>Ecology</td>
</tr>
<tr>
<td>BIOL 3420</td>
<td>Animal Behavior</td>
</tr>
<tr>
<td>CHEM 2319*</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CHEM 2119*</td>
<td>Laboratory Methods in Organic Chemistry</td>
</tr>
<tr>
<td>ENGR 2311</td>
<td>Mass and Energy Balances</td>
</tr>
<tr>
<td>GEOS 2304</td>
<td>Earth Surface Processes</td>
</tr>
<tr>
<td>GEOS 3411</td>
<td>Hydrology</td>
</tr>
<tr>
<td>GEOS 3308</td>
<td>GIS and Remote Sensing</td>
</tr>
</tbody>
</table>

**III. One course from the following list (check catalog for prerequisites)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 2357</td>
<td>Humans and the Environment</td>
</tr>
<tr>
<td>ANTH 3464</td>
<td>Morality in the Marketplace</td>
</tr>
<tr>
<td>ANTH 4354</td>
<td>Seminar in Primatology</td>
</tr>
<tr>
<td>CMLT 2301</td>
<td>World Literature and the Environment</td>
</tr>
<tr>
<td>ECON 3318</td>
<td>Global Economy</td>
</tr>
<tr>
<td>ECON 3334</td>
<td>Urban Economics (also listed as URBS 3334)</td>
</tr>
<tr>
<td>ENVI 3391</td>
<td>Environmental Literature</td>
</tr>
<tr>
<td>ENVI 4390</td>
<td>Special Topics in Environmental Policy</td>
</tr>
<tr>
<td>HIST 3382</td>
<td>The City in History (also listed as URBS 3305)</td>
</tr>
<tr>
<td>PLSI 3313</td>
<td>Policy Analysis and the Policymaking Process</td>
</tr>
<tr>
<td>URBS 3305</td>
<td>The City in History (also listed as HIST 3382)</td>
</tr>
<tr>
<td>URBS 3334</td>
<td>Urban Economics (also listed as ECON 3334)</td>
</tr>
<tr>
<td>ENVI 4301</td>
<td>Recommended: Senior Seminar in Environmental Studies</td>
</tr>
</tbody>
</table>

The course is available to seniors and may be taken only once for credit.

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**Honors in Environmental Studies**

Environmental Studies majors are eligible to receive Honors if they have completed two semesters of Senior Thesis credit and presented a senior thesis or project, which has been evaluated and approved by Environmental Studies faculty. In addition, students must attain an overall 3.3 grade point average cumulatively and in the major. Prior to registration for their senior year, Environmental Studies Honors candidates must meet with the Environmental Studies program chair and arrange for the faculty thesis director and two additional faculty members to act as an
Honors Advisory Committee. Students must submit to the program chair a written request to graduate with Honors in Environmental Studies no later than the first full week of the student’s final semester before graduation. The decision to confer or not to confer Honors will be made by the program chair, the Honors Committee and two additional faculty from the Environmental Studies Committee, based on the quality of the written thesis or art work and the oral presentation of that material.

ESAC Certification: "Green Leaf" Courses for Environment/Sustainability Across the Curriculum (ESAC)

Students interested in an Environment/Sustainability across the Curriculum (ESAC) certification have the opportunity to study the wide-ranging interdisciplinary questions relating to the environment and sustainability through a variety of courses while they pursue any major at Trinity. The program offers a certification as a supplement to traditional majors and minors.

Students earn the certification by successfully completing a minimum of five of the “Green Leaf” courses accepted by the program. (“Green Leaf” courses are noted in the class schedules in the text under the course title.)

At least one class of the five must be taken from each of the three categories:

I. Sciences and engineering;
II. Humanities and arts;
III. Social sciences and business.

No more than two courses can be in the student’s major.

Green Leaf courses counting toward certification:

<table>
<thead>
<tr>
<th>I. Sciences and Engineering:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1307 Biological Impact and Issues</td>
</tr>
<tr>
<td>BIOL 1311 Integrative Biology I</td>
</tr>
<tr>
<td>BIOL 3391 Selected Topics: La biodiversidad y Conservación de México</td>
</tr>
<tr>
<td>BIOL 3427 Plant Biology</td>
</tr>
<tr>
<td>BIOL 3434 Ecology</td>
</tr>
<tr>
<td>BIOL 4351 Conservation Biology</td>
</tr>
<tr>
<td>Code</td>
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</tr>
<tr>
<td>CHEM 3321</td>
</tr>
<tr>
<td>ENGR 2359</td>
</tr>
<tr>
<td>GEOS 1304</td>
</tr>
<tr>
<td>GEOS 1307</td>
</tr>
<tr>
<td>GEOS 1405</td>
</tr>
<tr>
<td>GEOS 3411</td>
</tr>
<tr>
<td>PHYS 1303</td>
</tr>
<tr>
<td>PHYS 3348</td>
</tr>
</tbody>
</table>

**II. Humanities and Arts:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 2495</td>
<td>Outdoor Studio</td>
</tr>
<tr>
<td>ARTH 3452</td>
<td>Nineteenth-Century Architecture and Urbanism</td>
</tr>
<tr>
<td>ARTH 3464</td>
<td>Twentieth-Century Architecture and Urbanism</td>
</tr>
<tr>
<td>ARTH 3365</td>
<td>Contemporary Architecture</td>
</tr>
<tr>
<td>CLAS 1304</td>
<td>Introduction to Archeology of the Aegean, Classical, and Roman Worlds</td>
</tr>
<tr>
<td>CMLT 2301</td>
<td>World Literature and the Environment</td>
</tr>
<tr>
<td>ENGL 3365</td>
<td>Nineteenth-Century British Poetry</td>
</tr>
<tr>
<td>ENGL 3371</td>
<td>American Literature of the Nineteenth Century: Realism and Naturalism</td>
</tr>
<tr>
<td>HIST 3337</td>
<td>Technology and Culture</td>
</tr>
<tr>
<td>HIST 3344</td>
<td>Modern Brazil</td>
</tr>
<tr>
<td>HIST 3382</td>
<td>The City in History (also listed as URBS 3304)</td>
</tr>
<tr>
<td>ML&amp;L 3342</td>
<td>The Peoples of Russia</td>
</tr>
<tr>
<td>URBS 3304</td>
<td>The City in History (also listed as HIST 3382)</td>
</tr>
</tbody>
</table>

**III. Social Sciences and Business:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 1301</td>
<td>Introduction to Anthropology</td>
</tr>
<tr>
<td>ANTH 2357</td>
<td>Humans and the Environment</td>
</tr>
<tr>
<td>ANTH 3349</td>
<td>Globalization and Social Change (also listed as SOCI 3349)</td>
</tr>
<tr>
<td>ANTH 3364</td>
<td>Economic Anthropology</td>
</tr>
<tr>
<td>ANTH 3367</td>
<td>South American Indigenous Peoples: Conquest and Development</td>
</tr>
<tr>
<td>ANTH 4354</td>
<td>Seminar in Primatology</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>-------------</td>
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</tr>
<tr>
<td>ECON 3330</td>
<td>Economics and the Environment (also listed as URBS 3330)</td>
</tr>
<tr>
<td>PLSI 1332</td>
<td>Film, Literature, and Politics of the Third World</td>
</tr>
<tr>
<td>SOCI 1316</td>
<td>Places and Regions in Global Context (also listed as URBS 1316)</td>
</tr>
<tr>
<td>SOCI 3340</td>
<td>Urban Geography (also listed as URBS 3340)</td>
</tr>
<tr>
<td>SOCI 3349</td>
<td>Globalization and Social Change (also listed as ANTH 3349)</td>
</tr>
<tr>
<td>URBS 1310</td>
<td>The Urban Experience</td>
</tr>
<tr>
<td>URBS 1316</td>
<td>Places and Regions in Global Context (also listed as SOCI 1316)</td>
</tr>
<tr>
<td>URBS 3330</td>
<td>Economics and the Environment (also listed as ECON 3330)</td>
</tr>
<tr>
<td>URBS 3340</td>
<td>Urban Geography (also listed as SOCI 3340)</td>
</tr>
</tbody>
</table>

**Additional Green Leaf Courses:**

When First-Year Seminars and Writing Workshops have topics related to environment/sustainability, or when departments offer a relevant “special topics” or “variable content” course, the Faculty Advisory Committee may approve such courses for inclusion within the ESAC certification program.

**Courses**

**ENVI-1301 Introduction to Environmental Studies**

Students study an interdisciplinary approach to environmental inquiry and action, which spans three areas: the natural sciences, social policy, and the humanities. Students engage in readings, discussions, and field trips from biology, geosciences, economics, social justice, art, ethics, and literature. This approach introduces students to the broad field of Environmental Studies and to the specific tracks of the major. (Offered every year.)

**ENVI-1305 Advanced Placement Credit in Environmental Science**

Students earning 4 or 5 on the Advanced Placement Test in Environmental Science or earn at least a 5 in the International Baccalaureate Environmental Systems and Societies course will receive AP credit through this course.

**ENVI-2-10 Environmental Studies Field School**

Students will analyze the changing face of geological systems, flora and fauna, and human society over time and space. Particular attention will be paid to land use over time and space, using skills of the natural sciences and policy analysis, as well as perspectives of art and literature.

**ENVI-2301 Environmental Science Methods and Analysis**

This course is an introduction to methods and analysis used by different disciplines in the environmental sciences. Three field investigations will be conducted by students that involve field and laboratory methods using
instrumentation and spatial analysis (e.g. Geographic Information Systems). These investigations will emphasize interdisciplinary approaches, experimental design, access to and use of scientific literature and effective communication of scientific process and results. This 3 credit course meets once per week for a 75 min lecture and once per week for a 4 hour laboratory. Prerequisites: BIOL 1311 and GEOS 1304

ENVI-3301 Environmental Literature
This course introduces students to environmental literature, including traditional nature writing from the nineteenth century to the present and more contemporary literary expressions about environment that reach beyond nature writing. Students will explore how literary works and critical theories help shape environmental understanding and how literary practices relate to other kinds of environmental discourses, such as those in the sciences and policy arenas. (Offered every Spring.)

ENVI-3-90 Environmental Studies Independent Study
Individual research in a selected area or of a selected topic. A student may repeat the course for a maximum of six semester hours. A project proposal must be submitted to and approved by the professor supervising the research prior to registration. Prerequisite: consent of instructor.

ENVI-4301 Senior Seminar in Environmental Studies
An in-depth synthesis of special topics from the Environmental Studies curriculum, with application to current environmental problems. Student work will integrate the three primary areas of environmental studies: the natural sciences, policy analysis and arts and humanities. Prerequisites: Senior standing

ENVI-4390 Topics in Environmental Policy
The course examines environmental policy as applied to specific cases of environmental problems and natural resource management. Topics vary. A student may repeat the course for a maximum of six semester hours. Prerequisite: Consent of the program chair required

ENVI-4395 Environmental Studies Internship
Field work experience in a setting arranged and approved by the student, a faculty member of the Environmental Studies Advisory committee, and a non-University institution. Supervision and guidance will be provided by the host agency and contact with the professor must be maintained. A student may repeat the course for a maximum of six semester hours. This course is taken Pass/Fail.

ENVI-4398 Thesis Research
Independent scholarly, scientific, or artistic work conducted under the supervision of a faculty thesis director. Course enrollment requires that the student submit a proposal, with the approval of a thesis director, to the Environmental Studies program chair before classes commence in the semester of ENVI 4398 credit. That proposal will be considered for approval by the program chair in consultation with the thesis director before the end of the add-drop period. (Every semester)

ENVI-4399 Thesis Writing and Presentation
A continuation of student work begun in ENVI 4398. Students are required to complete the project and present their work to students and faculty, the latter including the Environmental Studies program chair, the faculty mentor, and at least two other faculty members. (Every Semester) Prerequisite: Senior status required and ENVI 4395