Environmental Studies

Many of the most pressing challenges of the 21st Century are environmental ones. We must find ways to feed a growing human population while maintaining the natural life support system provided by the Earth's ecosystems; to make built environments more efficient as urban areas continue to grow dramatically in size; and to meet the challenges posed by rising sea-level and increasing global temperatures. These challenges are complex, multifaceted and can best be solved with expertise from multiple, relevant disciplines. To prepare students to meet these challenges, the Institute at Brown for Environment and Society (IBES) offers two undergraduate degrees: an A.B. in Environmental Studies and a Sc.B. in Environmental Science. The two degrees vary primarily in the number of course requirements; the Sc.B. is a more in-depth treatment of a single field. Both degrees provide interdisciplinary exposure to the natural and social sciences, as well as public policy. Both degrees also develop depth in a primary field by requiring students to select one of four tracks of study. Through a rigorous set of core courses, track requirements, and a course or project-based capstone experience, our students are primed to make meaningful contributions to environmental scholarship and outreach at local, national and global scales.

If you have administrative questions regarding theses concentrations or wish to be added to the email directory listing upcoming events, then please contact Jeanne Loewenstein (jeanne_loewenstein@brown.edu), the administrative manager.

Standard program in Environmental Studies and Environmental Science:
The Institute at Brown for Environment and Society administers two concentrations, one offering an A.B. degree in Environmental Studies (requires 14-15 courses) and the other a Sc.B. degree in Environmental Science (requires 19-20 courses). Below are a set of course offerings arranged into four tracks:
1. Air, Climate & Energy
2. Conservation Science & Policy
3. Land, Water & Food Security
4. Sustainability in Development

Requirements for the A.B. in Environmental Studies:

Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ECON 0110</td>
<td>Principles of Economics</td>
</tr>
<tr>
<td>ENVS 0490</td>
<td>Environmental Science in a Changing World</td>
</tr>
<tr>
<td>ENVS 0495</td>
<td>Introduction to Environmental Social Science</td>
</tr>
<tr>
<td>BIOL 0210</td>
<td>Diversity of Life</td>
</tr>
<tr>
<td>or GEOL 0240</td>
<td>Earth: Evolution of a Habitable Planet</td>
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Methods - one course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENVS 1920</td>
<td>Methods for Interdisciplinary Research</td>
</tr>
</tbody>
</table>

Electives - three courses

- You may choose among any ENVS course, any course shown on one or more of the tracks, and any prerequisites listed for a required course.

Capstone - one or two courses

- This requirement can be met with a two-semester thesis (ENVS 1970 and ENVS 1971), one or two semester practicum (ENVS 1970 and/or ENVS 1971), one-semester research project (ENVS 1970 or ENVS 1971), or an approved capstone course. Approved capstone courses are project-based senior seminars.

Track Specific Requirements

- Climate: Select One

Track 1 - Air, Climate, and Energy

- Climate: Select One
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>HIST 1820A</td>
<td>Environmental History</td>
</tr>
<tr>
<td>HIST 1976E</td>
<td>The Anthropocene: Climate Change as Social History</td>
</tr>
</tbody>
</table>

**Policy: Select One**

- ENVS 0510: International Environmental Law and Policy
- ENVS 1350: Environmental Economics and Policy
- ENVS 1410: Environmental Law and Policy
- ENVS 1530: From Locke to Deep Ecology: Property Rights and Environmental Policy
- ENVS 1555: Urban Agriculture: The Importance of Localized Food Systems
- ENVS 1575: Engaged Climate Policy at the UN Climate Change Talks
- ENVS 1615: Making Connections: The Environmental Policy Process
- ENVS 1925: Energy Policy and Politics
- POLS 1740: Politics of Food

**Tools: Select One**

- GEOL 1320: Introduction to Geographic Information Systems for Environmental Applications
- GEOL 1330: Global Environmental Remote Sensing
- SOC 1340: Principles and Methods of Geographic Information Systems

**Track 4 - Sustainability in Development**

- Environment and Development: Select Two
  - ECON 1410: Urban Economics
  - ECON 1530: Health, Hunger and the Household in Developing Countries
  - ENVS 1415: Power, Justice, and Climate Change
  - ENVS 1555: Urban Agriculture: The Importance of Localized Food Systems
  - ENVS 1580: Environmental Stewardship and Resilience in Urban Systems
  - ENVS 1755: Globalization and the Environment

**Policy: Select Two**

- ENVS 0510: International Environmental Law and Policy
- ENVS 1350: Environmental Economics and Policy
- ENVS 1410: Environmental Law and Policy
- ENVS 1530: From Locke to Deep Ecology: Property Rights and Environmental Policy
- ENVS 1575: Engaged Climate Policy at the UN Climate Change Talks
- ENVS 1615: Making Connections: The Environmental Policy Process
- ENVS 1925: Energy Policy and Politics

**Analysis Tools: Select One**

- ECON 1620: Introduction to Econometrics
- ANTH 1940: Ethnographic Research Methods
- EDUC 1100: Introduction to Qualitative Research Methods
- GEOL 1320: Introduction to Geographic Information Systems for Environmental Applications
- GEOL 1330: Global Environmental Remote Sensing
- SOC 1100: Introductory Statistics for Social Research
- SOC 1117: Focus Groups for Market and Social Research
- SOC 1340: Principles and Methods of Geographic Information Systems

**Total Credits:** 14-15

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1. Students with AP scores of 4 or 5 in Microeconomics may place out of ECON 0110. Students who place out of ECON 0110 must substitute this course with an additional environmental elective.

2. Concentrators with an AP score of 5 in Environmental Science may waive out of ENVS 0490. Students who place out of ENVS 0490 must substitute an additional environmental elective.

3. Students pursuing the Sc.B. must take ECON 1620.

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### Requirements for the Sc.B. in Environmental Science:

- Requires ALL 14-15 course requirements as listed in the A.B. Program
- Additional Track specific requirements as listed in the A.B. Program

#### Track 1 - Air, Climate, and Energy

- **Math:** Select Both
  - MATH 0090: Introductory Calculus, Part I
  - MATH 0100: Introductory Calculus, Part II
- **Environmental Economics:** Select One
  - ENVS 1350: Environmental Economics and Policy
- **Advanced Climate:** Select One
  - GEOL 1510: Introduction to Atmospheric Dynamics
  - GEOL 1520: Ocean Circulation and Climate
- **Thermal/Chem:** Select One
  - ENGN 0720: Thermodynamics
  - GEOL 1370: Environmental Geochemistry

#### Track 2 - Conservation Science and Policy

- **Math:** Select One
  - MATH 0090: Introductory Calculus, Part I
- **Evolution:** Select One
  - BIOL 0480: Evolutionary Biology
- **Organismal Diversity:** Select One
  - BIOL 0410: Invertebrate Zoology
  - BIOL 0430: The Evolution of Plant Diversity (BIOL 0460 - Insect Biology)
  - BIOL 0940C: Sophomore Seminar: Insect Biology
  - BIOL 0940D: Rhode Island Flora: Understanding and Documenting Local Plant Diversity
  - BIOL 1880: Comparative Biology of the Vertebrates
- **Env. Econ.:** Select One
  - ENVS 1350: Environmental Economics and Policy
- **Tools: Select One**
  - GEOL 1320: Introduction to Geographic Information Systems for Environmental Applications
  - GEOL 1330: Global Environmental Remote Sensing
  - SOC 1340: Principles and Methods of Geographic Information Systems

#### Track 3 - Land, Water & Food Security

- **Math:** Select One
  - MATH 0090: Introductory Calculus, Part I
- **Chemistry:** Select One
  - CHEM 0330: Equilibrium, Rate, and Structure
- **Earth/Life Systems:** Select Three
  - BIOL 1470: Conservation Biology
  - BIOL 1475: Biogeography
  - BIOL 1480: Terrestrial Biogeochemistry and the Functioning of Ecosystems
  - GEOG 0240: Earth: Evolution of a Habitable Planet
  - GEOL 1130: Ocean Biogeochemical Cycles
  - GEOL 1310: Global Water Cycle
  - GEOL 1370: Environmental Geochemistry
  - GEOL 1515: Introduction to Atmospheric Dynamics
  - GEOL 1660: Instrumental Analysis with Environmental Applications
### Track 4 - Sustainability in Development

**Sociology and Politics: Select One**
- SOC 1870K Demographics and Development
- POLS 0400 Introduction to International Politics
- ENVS 1755 Globalization and the Environment

**Critical Perspectives on Development: Select One**
- AMST 1700I Community Engagement with Health and the Environment
- ANTH 0110 Anthropology and Global Social Problems: Environment, Development, and Governance
- SOC 1871D Sophomore Seminar in Sociology of Development

**Economic Perspectives: Select Two**
- ECON 1110 Intermediate Microeconomics
- ENVS 1355 Environmental Issues in Development Economics
- ECON 1510 Economic Development
- ECON 1530 Health, Hunger and the Household in Developing Countries
- ECON 1560 Economic Growth

**Climate: Select One**
- GEOL 1350 Weather and Climate

**Total Credits: 19-20**

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1. Students with an AP exam of 4 or 5 on Calc AB may place out of MATH 0090. Students with an AP exam score of 4 or 5 on Calc BC may place out of MATH 0090 and MATH 0100. Students who place out of these courses must substitute an additional environmental elective.

### Honors

Candidates for honors must have a minimum GPA of 3.3 in their concentration courses at the end of their 6th semester, and must have completed a successful thesis or practicum proposal. Students may apply during the first month of their 7th semester. Honors will be conferred upon the successful completion of the thesis or practicum.