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 five tracks of study. Concentrators might also consider pursuing the Engaged Scholars Program, which allows them to connect theory and practice and gain hands-on experience working with community partners.

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 academic program 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. Environment & Inequality
4. Land, Water & Food Security
5. Sustainability in Development

### Requirements for the A.B. Degree

**Core Requirements**

- ECON 0110 or HIST 0150A: Principles of Economics
- ENVS 0490: Environmental Science in a Changing World
- BIOL 0210 or GEOL 0240: Diversity of Life
- ENVS 1920: Methods for Interdisciplinary Environmental Research

**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 & ENVS 1971), one-semester research project (ENVS 1970 or ENVS 1971), or an approved capstone course.

### Track Specific Requirements

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

**Foundation courses (choose two):**

- CHEM 0330: Equilibrium, Rate, and Structure
- ENGN 0030: Introduction to Engineering
- GEOL 0220: Physical Processes in Geology
- PHYS 0050: Foundations of Mechanics

**Climate (choose one):**

- GEOL 0850: Weather and Climate
- GEOL 1430: Principles of Planetary Climate

**Policy (choose one):**

- ENVS 0710: Powering the Past: Environmental Histories of Energy Use and Social Change
- ENVS 1415: Power, Justice, and Climate Change
- ENVS 1925: Energy Policy and Politics
- POLS 1822I: Geopolitics of Oil and Energy

**Energy Technology and Infrastructure (choose one):**

- ENVS 1400: Sustainable Design in the Built Environment
- ENVS 1580: Environmental Stewardship and Resilience in Urban Systems
- ENGN 0720: Thermodynamics
- ENGN 1930U: Renewable Energy Technologies
- ENGN 1931P: Fuels, Energy and the Environment

**Track 2 - Conservation Science and Policy**

**Ecology:**

- BIOL 0420: Principles of Ecology
- BIOL 1470: Conservation Biology

**Ecology & Conservation Topics: Select One**

- BIOL 0455: Coastal Ecology and Conservation
- BIOL 1450: Community Ecology
- BIOL 1480: Terrestrial Biogeochemistry and the Functioning of Ecosystems

**Policy: Select One**

- ENVS 1415: Power, Justice, and Climate Change
- 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 1755: Globalization and the Environment
- ENVS 1925: Energy Policy and Politics

**Statistics: Select One**

- APMA 0650: Essential Statistics
- APMA 1650: Statistical Inference I
- BIOL 0495: Statistical Analysis of Biological Data
- ECON 1620: Introduction to Econometrics

**Track 3 – Environment and Inequality**

**Track Intro Course:**

- ENVS 0705: Equity and the Environment: Movements, Scholarship, Solutions

**Race, Class, and Gender Inequality: Select One**

- AFRI 0090: An Introduction to Africana Studies
- AFRI 0210: Afro Latin Americans and Blackness in the Americas
<table>
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<tr>
<th>Track 4 - Land, Water &amp; Food Security</th>
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<tr>
<td><strong>Climate: Select One</strong></td>
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**Tools: Select One**

**Policy: Select One**

**ANTH 0680** Anthropology of Food

**ENVS 1910** The Anthropocene: The Past and Present of Environmental Change

**HIST 0270A** From Fire Wielders to Empire Builders: Human Impact on the Global Environment before 1492

**HIST 0270B** From the Columbian Exchange to Climate Change: Modern Global Environmental History

**HIST 1820A** Environmental History

**Policy: Select One**

**ENVS 1350** Environmental Economics and 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**

**ENVS 1105** Introduction to Environmental GIS

**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 5 - 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 One**

**ENVS 1350** Environmental Economics and 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

**ENVS 1105** Introduction to Environmental GIS

**GEOL 1320** Introduction to Geographic Information Systems for Environmental Applications

**GEOL 1330** Global Environmental Remote Sensing

**SOC 1100** Introductory Environmental Remote Sensing

2 Environmental Studies

| ECON 1370 | Race and Inequality in the United States |
| ETHN 1000 | Introduction to American/Ethnic Studies |
| GNSS 1600 | Embodying Feminisms/Feminist Embodiments |
| HIST 0203 | Modern Africa: From Empire to Nation-State |
| HIST 1974J| Decolonizing Minds: A People's History of the World |
| SOC 0230  | Sex, Gender, and Society |
| SOC 1270  | Race, Class, and Ethnicity in the Modern World |
| SOC 1872C | Race and Ethnic Relations, Identity, and Inequality |

**Environment and Inequality: Select One**

**ANTH 0110** Anthropology and Global Social Problems: Environment, Development, and Governance

**ENVS 0710** Powering the Past: Environmental Histories of Energy Use and Social Change

**ENVS 1415** Power, Justice, and Climate Change

**ENVS 1910** The Anthropocene: The Past and Present of Environmental Change

**HIST 0270A** From Fire Wielders to Empire Builders: Human Impact on the Global Environment before 1492

**HIST 0270B** From the Columbian Exchange to Climate Change: Modern Global Environmental History

**PHP 1700** Current Topics in Environmental Health

**Tools: Select One**

**ANTH 1940** Ethnographic Research Methods

**ECON 1620** Introduction to Econometrics

**EDUC 1100** Introduction to Qualitative Research Methods

**ENVS 1105** Introduction to Environmental GIS

**GEOL 1320** Introduction to Geographic Information Systems for Environmental Applications

**GEOL 1330** Global Environmental Remote Sensing

**SOC 1117** Focus Groups for Market and Social Research

**SOC 1340** Principles and Methods of Geographic Information Systems

**SOC 2610** Spatial Thinking in Social Science

**Policy: Select One**

**ENVS 1415** Power, Justice, and Climate Change

**ENVS 1555** Urban Agriculture: The Importance of Localized Food Systems

**ENVS 1575** Engaged Climate Policy at the UN Climate Change Talks

**INTL 1700** International Law

**POLS 0400** Introduction to International Politics

**POLS 1730** Politics of Globalization

**URBN 1000** Fieldwork in the Urban Community

**URBN 1220** Planning Sustainable Cities

**URBN 1250** The Political Foundations of the City

2 Environmental Studies
Requirements for the Sc.B. Degree

Tools: Select One

- Env. Econ: Select One
- Organismal Diversity: Select One
- Evolution: Select One
- Math: Select One

Track 2 - Conservation Science and Policy

- Climate and Thermal Change (choose two):
- Tools (choose one):
- Track 1 - Air, Climate, and Energy

Additional Track specific requirements for the Sc.B. Program

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

Track 1 - Air, Climate, and Energy

Math:
- MATH 0090 - Introductory Calculus, Part I

Policy (choose one):
- ENVS 1350 - Environmental Economics and Policy
- ENVS 1415 - Power, Justice, and Climate Change
- ENVS 1575 - Engaged Climate Policy at the UN Climate Change Talks
- ENVS 1615 - Making Connections: The Environmental Policy Process
- ENVS 1755 - Globalization and the Environment
- ENVS 1925 - Energy Policy and Politics
- POLS 1822I - Geopolitics of Oil and Energy

Tools (choose one):
- APMA 0650 - Essential Statistics
- ECON 1620 - Introduction to Econometrics
- ENVS 1105 - Introduction to Environmental GIS
- GEOL 1320 - Introduction to Geographic Information Systems for Environmental Applications
- GEOL 1330 - Global Environmental Remote Sensing

Climate and Thermal Change (choose two):
- ENGN 0720 - Thermodynamics
- ENGN 1720 - Design of Thermal Engines
- ENGN 1930M - Industrial Design
- GEOL 1370 - Environmental Geochemistry
- GEOL 1510 - Introduction to Atmospheric Dynamics
- GEOL 1520 - Ocean Circulation and Climate

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
- ECON 1340 - Economics of Global Warming
- ENVS 1350 - Environmental Economics and Policy

Tools: Select One

- ENVS 1105 - Introduction to Environmental GIS
- GEOL 1320 - Introduction to Geographic Information Systems for Environmental Applications
- GEOL 1330 - Global Environmental Remote Sensing
- SOCI 1340 - Principles and Methods of Geographic Information Systems

Track 3 - Environment and Inequality

Tools: Select One
- ANTH 1940 - Ethnographic Research Methods
- ECON 1620 - Introduction to Econometrics
- EDUC 1100 - Introduction to Qualitative Research Methods
- ENVS 1105 - Introduction to Environmental GIS
- GEOL 1320 - Introduction to Geographic Information Systems for Environmental Applications
- GEOL 1330 - Global Environmental Remote Sensing
- SOCI 1100 - Introductory Statistics for Social Research
- SOCI 1117 - Focus Groups for Market and Social Research
- SOCI 1340 - Principles and Methods of Geographic Information Systems
- SOC 2610 - Spatial Thinking in Social Science

Race, Class and Gender Inequality: Select One
- ECON 1370 - Race and Inequality in the United States
- GNSS 1600 - Embodying Feminisms/Feminist Embodiments
- ETHN 1200I - History and Resistance in Representations of Native Peoples
- HIST 1974J - Decolonizing Minds: A People's History of the World
- SOC 1270 - Race, Class, and Ethnicity in the Modern World
- SOC 1872C - Race and Ethnic Relations, Identity, and Inequality

SELECT A FOCUS AREA (pick three courses from only one focus area)

FOCUS ONE - Environmental Inequality in Globalization and Development: Select Three
- ANTH 0110 - Anthropology and Global Social Problems: Environment, Development, and Governance
- DEVL 1803R - Caribbean and Pacific Small States: On the Margins of Development
- ECON 1355 - Environmental Issues in Development Economics
- ECON 1510 - Economic Development
- ECON 1530 - Health, Hunger and the Household in Developing Countries
- ENVS 1415 - Power, Justice, and Climate Change
- HIST 0150D - Refugees: A Twentieth-Century History
- PHP 1070 - The Burden of Disease in Developing Countries
- POLS 1440 - Security, Governance and Development in Africa
- POLS 1730 - Politics of Globalization
- SOCI 0150 - Economic Development and Social Change

FOCUS TWO - Environmental Health and Inequality: Select Three
- AFRI 1060W - Policy, Culture and Discourse that Shape Health and Access to Healthcare
- AMST 1700I - Community Engagement with Health and the Environment
Environmental Studies

ANTH 1310  International Health: Anthropological Perspectives
BIOL 1820  Environmental Health and Disease
HIST 1960Q  Medicine and Public Health in Africa
PHP 0320  Introduction to Public Health
PHP 1070  The Burden of Disease in Developing Countries
PHP 1530  Case Studies in Public Health: The Role of Governments, Communities and Professions
PHP 1700  Current Topics in Environmental Health
PHP 1710  Climate Change and Human Health
PHP 1920  Social Determinants of Health

FOCUS THREE - Environmental Inequalities in Food, Water, and Energy: Select Three
AMST 1906P  Food in American Society and Culture
DEVL 1803R  Caribbean and Pacific Small States: On the Margins of Development
ENVS 0710  Powering the Past: Environmental Histories of Energy Use and Social Change
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 1925  Energy Policy and Politics
ETHN 1750B  Treaty Rights and Food Fights: Eating Local in Indian Country

Track 4 - 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 Biogeochernistry and the Functioning of Ecosystems
GEOL 0240  Earth: Evolution of a Habitable Planet
GEOL 1130  Ocean Biogeochemical Cycles
GEOL 1310  Global Water Cycle
GEOL 1370  Environmental Geochemistry
GEOL 1510  Introduction to Atmospheric Dynamics
GEOL 1660  Instrumental Analysis with Environmental Applications

Track 5 - Sustainability in Development
Sociology and Politics: Select One
ENVS 1755  Globalization and the Environment
POLS 0400  Introduction to International Politics
SOC 1870K  Demographics and Development
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
ECON 1340  Economics of Global Warming

Total Credits: 19-20

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Honors

Students interested in graduating with honors in their concentration must complete a thesis determined to be of the highest quality and must have excelled in their coursework required for the concentration, which is defined here as receiving a grade of "A" in the majority of courses taken to fulfill the concentration. You can learn more by visiting the honors page [here](https://www.brown.edu/academics/institute-environment-society/education/undergraduate/honors) on the IBES website.

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1 The track requirement of MATH 0090 can be waived for students with an AP exam of 4 or 5 on Calc AB.