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 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
- ECON 0110 Principles of Economics  
- ENVS 0490 Environmental Science in a Changing World  
- ENVS 0495 Introduction to Environmental Social Science  
- GEOL 0240 Earth: Evolution of a Habitable Planet  
- or BIOL 0210 Diversity of Life

Track Specific Requirements 5

Track 1 - Air, Climate, and Energy

Climate:
- GEOL 1350 Weather and Climate

Physics:
- PHYS 0050 Foundations of Mechanics
- ENGN 1930U Renewable Energy Technologies
- PHYS 0114 The Science and Technology of Energy
- Policy: choose 1
- ENVS 1410 Environmental Law and Policy
- ENVS 1415 Power, Justice, and Climate Change
- ENVS 1615 Making Connections: The Environmental Policy Process
- ENVS 1755 Globalization and the Environment

Track 2 - Conservation Science and Policy

Ecology:
- BIOL 0420 Principles of Ecology

Conservation:
- BIOL 1470 Conservation Biology

Marine Conservation: choose 1
- ENVS 0455 Coastal Ecology and Conservation
- ENVS 1455 Marine Conservation Science and Policy

Policy: choose 1
- ENVS 0510 International Environmental Law and Policy
- ENVS 1410 Environmental Law and Policy
- ENVS 1615 Making Connections: The Environmental Policy Process

Statistics: Choose 1
- APMA 0650 Essential Statistics
- APMA 1650 Statistical Inference I
- BIOL 0495 Statistical Analysis of Biological Data
- ECON 1620 Introduction to Econometrics

Track 3 - Land, Water & Food Security

Climate:
- GEOL 1350 Weather and Climate

Biology: choose 1
- BIOL 0210 Diversity of Life
- BIOL 0190H Plants, Food, and People
- BIOL 0420 Principles of Ecology

Environmental History: choose 1
- ENVS 0455 Coastal Ecology and Conservation

Environmental Law and Policy
- ENVS 1530 From Locke to Deep Ecology: Property Rights and Environmental Policy

Policy: choose 1
- ENVS 0510 International Environmental Law and Policy
- ENVS 1350 Environmental Economics and Policy
- ENVS 1410 Environmental Law and Policy
- ENVS 1455 Marine Conservation Science and Policy
- ENVS 1615 Making Connections: The Environmental Policy Process

Tools: Choose 1
- 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: choose 2
- ECON 1410 Urban Economics
- ECON 1530 Health, Hunger and the Household in Developing Countries
- ENVS 1580 Environmental Stewardship and Resilience in Urban Systems
- ENVS 1415 Power, Justice, and Climate Change
- ENVS 1555 Urban Agriculture: The Importance of Localized Food Systems
- ENVS 1755 Globalization and the Environment

Policy: choose 2
- ENVS 1925 Energy Policy and Politics
- ENVS 1400 Sustainable Design in the Built Environment
- ENVS 1580 Environmental Stewardship and Resilience in Urban Systems
ENVS 0510 International Environmental Law and Policy
ENVS 1350 Environmental Economics and Policy
ENVS 1410 Environmental Law and Policy
ENVS 1455 Marine Conservation Science and Policy
ENVS 1615 Making Connections: The Environmental Policy Process

Analysis Tools: Choose 1
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
SOC 1100 Introductory Statistics for Social Research
SOC 1117 Focus Groups for Market and Social Research

Electives
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.

Methods Course
ENVS 1920 Methods for Interdisciplinary Environmental Research

Capstone
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.

Total Credits 14-15

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 place 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.

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 for the Sc.B.

Track 1 - Air, Climate, and Energy
Math: (both required)
MATH 0090 Introductory Calculus, Part I
MATH 0100 Introductory Calculus, Part II

Environmental Economics:
ENVS 1350 Environmental Economics and Policy

Advanced Climate: choose 1
GEOL 1510 Introduction to Atmospheric Dynamics
GEOL 1520 Ocean Circulation and Climate

Thermal/Chem.: choose 1
ENGN 0720 Thermodynamics
GEOL 1370 Environmental Geochemistry

Track 2 - Conservation Science and Policy
Math:
MATH 0090 Introductory Calculus, Part I
Evolution:
BIOL 0480 Evolutionary Biology
Organismal Diversity: choose 1

Track 3 - Land, Water & Food Security
Math:
MATH 0090 Introductory Calculus, Part I

Chemistry:
CHEM 0330 Equilibrium, Rate, and Structure

Earth/Life Systems: choose 3
BIOL 1470 Conservation Biology
BIOL 1475 Biogeography
BIOL 1480 Terrestrial Biogeochemistry and the Functioning of Ecosystems

ENVS 1491 SES-Terrestrial Ecosystem Analysis
ENVS 1492 SES-Aquatic Ecosystem Analysis
GEOL 0240 Earth: Evolution of a Habitable Planet
GEOL 1110 Estuarine Oceanography
GEOL 1130 Ocean Biogeochemical Cycles
GEOL 1370 Environmental Geochemistry
GEOL 1510 Introduction to Atmospheric Dynamics
GEOL 1660 Instrumental Analysis with Environmental Applications

Track 4 - Sustainability in Development
Sociology and Politics: choose 1
SOC 1870K Demographics and Development
POLS 0400 Introduction to International Politics
ENVS 1755 Globalization and the Environment

Critical Perspectives on Development: choose 1:
ANTH 0110 Anthropology and Global Social Problems: Environment, Development, and Governance
SOC 1870D Sophomore Seminar in Sociology of Development

Economic Perspectives: choose 2
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:
GEOL 1350 Weather and Climate

Total Credits 19-20

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.