

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 these 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	Principles of Economics ¹	1
or HIST 0150A	History of Capitalism	

ENVS 0490	Environmental Science in a Changing World ²	1
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ENVS 0110	Humans, Nature, and the Environment: Addressing Environmental Change in the 21st Century	1
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BIOL 0210	Diversity of Life	1
or EEPS 0240	Earth: Evolution of a Habitable Planet	

Methods - one course

ENVS 1920	Methods for Interdisciplinary Environmental Research	1
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Electives - three courses

Electives provide increased environmental expertise and further enhance a student's ability to customize a course of study. Acceptable electives include any ENVS courses, classes with significant environmental content, and prerequisites for classes students take to fulfill requirements within their declared track.

Capstone - one or two courses

1-2

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

5

Track 1 - Air, Climate, and Energy

Foundational courses (choose two):

CHEM 0330	Equilibrium, Rate, and Structure
EEPS 0220	Earth Processes
ENGN 0030	Introduction to Engineering
ENGN 0490	Fundamentals of Environmental Engineering
PHYS 0030	Basic Physics A
PHYS 0050	Foundations of Mechanics

Climate (choose one):

EEPS 0850	Weather and Climate
EEPS 1430	Principles of Planetary Climate
ENGN 1931R	The Chemistry of Environmental Pollution
ENVS 1245	Air Pollution & Chemistry

Policy (choose one):

ANTH 1601	Reimagining Climate Change
ENVS 0710	Powering the Past: Environmental Histories of Energy Use and Social Change

ENVS 1415	Power, Justice, and Climate Change
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ENVS 1615	Making Connections: The Environmental Policy Process
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ENVS 1925	Energy Policy and Politics
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POLS 1435	Politics of Climate Change
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POLS 1822I	Geopolitics of Oil and Energy
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Energy Technology and Infrastructure (choose one):

ENGN 0490	Fundamentals of Environmental Engineering
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ENGN 0720	Thermodynamics
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ENGN 1930U	Renewable Energy Technologies
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ENGN 1931P	Energy and the Environment
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ENVS 1400	Sustainable Design in the Built Environment
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ENVS 1580	Environmental Stewardship and Resilience in Urban Systems
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Track 2 - Conservation Science and Policy

Ecology:

BIOL 0420	Principles of Ecology
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Conservation:

BIOL 1470	Conservation Biology
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Ecology & Conservation Topics: Select One

BIOL 1155	Hormones and Behavior
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BIOL 1450	Community Ecology
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BIOL 1480	Terrestrial Biogeochemistry and the Functioning of Ecosystems
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BIOL 1515	Conservation in the Genomics Age
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Policy: Select One

ANTH 1601	Reimagining Climate Change
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ENVS 1415	Power, Justice, and Climate Change
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ENVS 1555	Urban Agriculture: The Importance of Localized Food Systems
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ENVS 1574	Engaged Climate Policy in the U.S.: Rhode Island and Washington, DC
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ENVS 1615	Making Connections: The Environmental Policy Process
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ENVS 1755	Globalization and the Environment
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ENVS 1916	Animals and Plants in Chinese History
ENVS 1925	Energy Policy and Politics
POLS 1435	Politics of Climate Change

Statistics: Select One

APMA 0650	Essential Statistics
APMA 1650	Statistical Inference I
BIOL 0495	Statistical Analysis of Biological Data
CLPS 0900	Statistical Methods
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
AFRI 0830	How Structural Racism Works
ECON 1370	Race and Inequality in the United States
ETHN 1000	Introduction to American/Ethnic Studies
HIST 0150D	Refugees: A Twentieth-Century History
HIST 0203	Modern Africa: From Empire to Nation-State
HIST 1972J	Racial Capitalism and U.S. Liberal Empire
SOC 0230	Sex, Gender, and Society
SOC 1270	Race, Class, and Ethnicity in the Modern World

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 1910	The Anthropocene: The Past and Present of Environmental Change
HIST 0270A	From Fire Welders 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
APMA 1650	Statistical Inference I
ECON 1620	Introduction to Econometrics
ENVS 1105	Introduction to Environmental GIS
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications
EEPS 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
SOC 2610	Spatial Thinking in Social Science

Policy: Select One

ANTH 1601	Reimagining Climate Change
ENVS 0150	Climate Futures and a Sociology of Just Transitions
ENVS 1415	Power, Justice, and Climate Change

ENVS 1555	Urban Agriculture: The Importance of Localized Food Systems
ENVS 1574	Engaged Climate Policy in the U.S.: Rhode Island and Washington, DC
ENVS 1615	Making Connections: The Environmental Policy Process
IAPA 1205	International Law
POLS 0220	City Politics
POLS 0400	Introduction to International Politics
POLS 1435	Politics of Climate Change
POLS 1730	Politics of Globalization
URBN 1000	Fieldwork in the Urban Community
URBN 1250	The Political Foundations of the City
URBN 1270	Urban Politics and Urban Public Policy

Track 4 - Land, Water & Food Security

Climate: Select One

EEPS 0850	Weather and Climate
EEPS 1430	Principles of Planetary Climate
ENGN 1931R	The Chemistry of Environmental Pollution
ENVS 1245	Air Pollution & Chemistry

Biology: Select One

BIOL 0160	Plants, Food, and People
BIOL 0210	Diversity of Life
BIOL 0420	Principles of Ecology
BIOL 0430	The Evolution of Plant Diversity
BIOL 0440	Inquiry in Plant Biology: Analysis of Plant Growth, Reproduction and Adaptive Responses
BIOL 0940D	Rhode Island Flora: Understanding and Documenting Local Plant Diversity

Environmental History: Select One

ANTH 0680	Anthropology of Food
ENVS 0710	Powering the Past: Environmental Histories of Energy Use and Social Change
ENVS 1557	Birding Communities
ENVS 1910	The Anthropocene: The Past and Present of Environmental Change
ENVS 1915	Histories of Global Wetlands
ENVS 1916	Animals and Plants in Chinese History
HIST 0150H	Foods and Drugs in History
HIST 0270A	From Fire Welders 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 1820B	Environmental History of East Asia
HIST 1976C	Animal, Vegetable, Mineral: Environmental Histories of Non-Human Actors
HIST 1976I	Imperialism and Environmental Change

Policy: Select One

ENVS 1350	Environmental Economics and Policy
ENVS 1555	Urban Agriculture: The Importance of Localized Food Systems
ENVS 1574	Engaged Climate Policy in the U.S.: Rhode Island and Washington, DC
ENVS 1615	Making Connections: The Environmental Policy Process
ENVS 1925	Energy Policy and Politics
POLS 1435	Politics of Climate Change

PHP 1101	World of Food: Personal to Global Perspectives on Nutrition, Agriculture and Policy
Tools: Select One	
APMA 1650	Statistical Inference I
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications
EEPS 1330	Global Environmental Remote Sensing
ENVS 1105	Introduction to Environmental GIS
SOC 1340	Principles and Methods of Geographic Information Systems
Track 5 - Sustainability in Development	
Environment and Development: Select Two	
ANTH 0110	Anthropology and Global Social Problems: Environment, Development, and Governance
ECON 1510	Economic Development
ECON 1530	Health, Hunger and the Household in Developing Countries
ENVS 0150	Climate Futures and a Sociology of Just Transitions
ENVS 1415	Power, Justice, and Climate Change
ENVS 1580	Environmental Stewardship and Resilience in Urban Systems
ENVS 1755	Globalization and the Environment
SOC 0150	Economic Development and Social Change
Policy: Select Two	
ENVS 1350	Environmental Economics and Policy
ENVS 1555	Urban Agriculture: The Importance of Localized Food Systems
ENVS 1574	Engaged Climate Policy in the U.S.: Rhode Island and Washington, DC
ENVS 1615	Making Connections: The Environmental Policy Process
ENVS 1925	Energy Policy and Politics
POLS 1435	Politics of Climate Change
POLS 1822I	Geopolitics of Oil and Energy
Tools: Select One	
ANTH 1940	Ethnographic Research Methods
APMA 1650	Statistical Inference I
ECON 1620	Introduction to Econometrics
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications
EEPS 1330	Global Environmental Remote Sensing
ENVS 1105	Introduction to Environmental GIS
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

¹ The ECON 0110 core requirement can be waived for students with an AP exam score of 4 or 5 in both Microeconomics and Macroeconomics.

² The core requirement of ENVS 0490 can be waived for students with an AP exam score of 5 in Environmental Science.

Requirements for the Sc.B. Degree

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

Additional Track specific requirements for the Sc.B. 5

Track 1 - Air, Climate, and Energy

Math:	
MATH 0090	Introductory Calculus, Part I ¹
Policy (choose one):	
ECON 1340	Economics of Global Warming
ENVS 1350	Environmental Economics and Policy
ENVS 1415	Power, Justice, and Climate Change
ENVS 1574	Engaged Climate Policy in the U.S.: Rhode Island and Washington, DC
ENVS 1615	Making Connections: The Environmental Policy Process
ENVS 1755	Globalization and the Environment
ENVS 1925	Energy Policy and Politics
IAPA 1802C	Infrastructure!
POLS 1435	Politics of Climate Change
POLS 1822I	Geopolitics of Oil and Energy

Tools (choose one):	
APMA 0340	Methods of Applied Mathematics II
APMA 0650	Essential Statistics
APMA 1650	Statistical Inference I
ECON 1620	Introduction to Econometrics
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications
EEPS 1330	Global Environmental Remote Sensing
ENVS 1105	Introduction to Environmental GIS

Climate and Thermal Change (choose two):	
EEPS 0230	Geochemistry: Earth and Planetary Materials and Processes
EEPS 1120	Paleoceanography
EEPS 1370	Environmental Geochemistry
EEPS 1510	Introduction to Atmospheric Dynamics
ENGN 0720	Thermodynamics
EEPS 1520	Ocean Circulation and Climate
ENGN 0720	Thermodynamics
ENGN 1710	Heat and Mass Transfer
ENGN 1930M	Industrial Design
ENGN 1931R	The Chemistry of Environmental Pollution
ENVS 1245	Air Pollution & Chemistry

Track 2 - Conservation Science and Policy

Math: Select One	
MATH 0090	Introductory Calculus, Part I ¹
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 0440	Inquiry in Plant Biology: Analysis of Plant Growth, Reproduction and Adaptive Responses
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
ECON 1355	Environmental Issues in Development Economics

Tools: Select One	
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications

EEPS 1330	Global Environmental Remote Sensing
ENVS 1105	Introduction to Environmental GIS
SOC 1340	Principles and Methods of Geographic Information Systems
SOC 2610	Spatial Thinking in Social Science

Track 3 – Environment and Inequality

Tools: Select One

ANTH 1940	Ethnographic Research Methods
ECON 1620	Introduction to Econometrics
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications
EEPS 1330	Global Environmental Remote Sensing
ENVS 1105	Introduction to Environmental GIS
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
SOC 2610	Spatial Thinking in Social Science

Race, Class and Gender Inequality: Select One

ECON 1370	Race and Inequality in the United States
ETHN 1200I	History and Resistance in Representations of Native Peoples
SOC 1270	Race, Class, and Ethnicity in the Modern World

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
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
ENVS 1916	Animals and Plants in Chinese History
HIST 0150D	Refugees: A Twentieth-Century History
PHP 1070	Global Burden of Disease
POLS 1440	Security, Governance and Development in Africa
POLS 1730	Politics of Globalization
SOC 0150	Economic Development and Social Change

FOCUS TWO - Environmental Health and Inequality: Select Three

AFRI 1920	Health Inequality in Historical Perspective
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	Global Burden of Disease
PHP 1101	World of Food: Personal to Global Perspectives on Nutrition, Agriculture and Policy
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

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 1915	Histories of Global Wetlands
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 ¹
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Chemistry: Select One

CHEM 0330	Equilibrium, Rate, and Structure
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Earth/Life Systems: Select Three

BIOL 1470	Conservation Biology
BIOL 1480	Terrestrial Biogeochemistry and the Functioning of Ecosystems
EEPS 0240	Earth: Evolution of a Habitable Planet
EEPS 0830	Water In Our World
EEPS 1120	Paleoceanography
EEPS 1130	Ocean Biogeochemical Cycles
EEPS 1310	Global Water Cycle
EEPS 1370	Environmental Geochemistry
EEPS 1510	Introduction to Atmospheric Dynamics
ENGN 1340	Water Supply and Treatment Systems - Technology and Sustainability

Track 5 - Sustainability in Development

Sociology and Politics: Select One

ENVS 0150	Climate Futures and a Sociology of Just Transitions
ENVS 1755	Globalization and the Environment
POLS 0400	Introduction to International Politics
SOC 0150	Economic Development and Social Change

Critical Perspectives on Development: Select One

ANTH 0110	Anthropology and Global Social Problems: Environment, Development, and Governance
ECON 1370	Race and Inequality in the United States
IAPA 1802C	Infrastructure!
POLS 1200	Reimagining Capitalism
SOC 0150	Economic Development and Social Change
SOC 1620	Globalization and Social Conflict

Economic Perspectives: Select Two

ECON 1110	Intermediate Microeconomics
ECON 1340	Economics of Global Warming
ECON 1355	Environmental Issues in Development Economics
ECON 1510	Economic Development
ECON 1530	Health, Hunger and the Household in Developing Countries
ECON 1560	Economic Growth
ENVS 1350	Environmental Economics and Policy
IAPA 1700	Economics for Public Policy

Climate: Select One

EEPS 0850	Weather and Climate
ENVS 1245	Air Pollution & Chemistry

Total Credits **19-20**

¹ The track requirement of MATH 0090 can be waived for students with an AP exam of 4 or 5 on Calc AB; or students with an AP exam score of 4 or 5 on Calc BC in place of Math 0090 & 0100

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 (<https://www.brown.edu/academics/institute-environment-society/education/undergraduate/honors/>) on the IBES website.