

Environmental Studies

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 Sciences and an Sc.B. in Environmental Studies and Sciences. The A.B. guarantees students have a holistic and interdisciplinary understanding of the environment, while the Sc.B. is a more in-depth treatment of a single field: Climate and Energy; Conservation and Natural Systems; Environmental Justice and Health; or Sustainable Development and Governance. Both degrees provide interdisciplinary exposure to the natural and social sciences, as well as public policy.

Through a rigorous set of core courses; track requirements; and a course, independent research, 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 (jeannel@brown.edu), the academic program manager.

Standard program in Environmental Studies and Environmental Sciences:

The Institute at Brown for Environment and Society administers two concentrations, one offering an A.B. degree in Environmental Studies and Environmental Sciences (**requires 12-13 courses**) and the other a Sc.B. degree in Environmental Studies and Environmental Sciences (**requires 17-18 courses**). Students pursuing an Sc.B. degree can further focus their study by selecting one 4 track offerings:

1. Climate and Energy
2. Conservation Science and Natural Systems
3. Environmental Justice and Health
4. Sustainable Development & Governance

Requirements for the A.B. Degree

Core Requirements

ENVS 0490	Environmental Science in a Changing World ¹	1
ENVS 0110	Humans, Nature, and the Environment: Addressing Environmental Change in the 21st Century	1

Tools - pick one 1

Courses focused on building qualitative or quantitative research tools

ANTH 1940	Ethnographic Research Methods
APMA 0160	Introduction to Scientific Computing
APMA 0650	Essential Statistics
APMA 1650	Statistical Inference I
BIOL 0495	Statistical Analysis of Biological Data
CSCI 0111	Computing Foundations: Data
CSCI 0190	Accelerated Introduction to Computer Science
CLPS 0900	Statistical Methods
CLPS 0950	Introduction to programming
DATA 0200	Data Science Fluency
ECON 0110	Principles of Economics

ECON 1620	Introduction to Econometrics
EEPS 0250	Computational Approaches to Modelling and Quantitative Analysis in Natural Sciences: An Introduction
EEPS 1320	Introduction to Geographic Information Systems for Environmental Applications
EEPS 1330	Global Environmental Remote Sensing
EEPS 1340	Machine Learning for the Earth and Environment
ENVS 1911	Narrating the Anthropocene
SOC 1020	Methods of Social Research
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

Electives - three courses 3

Any ENVS Course, any course listed in AB focal areas, any course used as a prereq for a concentration requirement, or a Course FOCUSED on the Environment that is approved by the curriculum committee (an environmental section in a course will not count). AB students interested in focusing in a specific discipline are encouraged to take electives in the same category.

Capstone - one or two courses 1-2

The College expects that a capstone will be completed in semesters 7 or 8 - with the intention of providing an opportunity for students to integrate many aspects of their course of study, or area of focus. 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.

Foundations in Earth Sciences and Technology - pick one 1

Courses focusing on earth, atmospheric, engineering or water sciences.

EEPS 0070	Introduction to Oceanography
EEPS 0160M	Natural Disasters
EEPS 0220	Understanding Earth and Environmental Processes
EEPS 0240	Earth: Evolution of a Habitable Planet
EEPS 0830	Water in Our World
EEPS 0850	Weather and Climate
EEPS 1310	Global Water Cycle
EEPS 1510	Dynamic Meteorology
ENGN 0490	Fundamentals of Environmental Engineering
ENGN 1342	Groundwater Flow and Transport
ENVS 0070G	Historical Climatology and Global Climate Change

Ecology/Biological Sciences - pick one 1

Courses focused on ecological or conservation biology

BIOL 0210	Diversity of Life
BIOL 0380	The Ecology and Evolution of Infectious Disease
BIOL 0420	Principles of Ecology
BIOL 0430	The Evolution of Plant Diversity
BIOL 0940D	Rhode Island Flora: Understanding and Documenting Local Plant Diversity
BIOL 1440	Coral Reef Ecology
BIOL 1470	Conservation Biology
BIOL 1480	Terrestrial Biogeochemistry and the Functioning of Ecosystems
BIOL 1515	Conservation in the Genomics Age
ENVS 1775	Biogeography

Environmental Justice and Equity - pick one 1

Courses focused on environmental issues through a justice and/or equity lens

ANTH 1601	Reimagining Climate Change
ENVS 0705	Equity and the Environment: Movements, Scholarship, Solutions
ENVS 1232	Land Matters: Stewardship, Sovereignty, and Justice on the Ground
ENVS 1247	Clearing the Air: Environmental Studies of Pollution
ENVS 1554	Farm Planet: Hunger, Development, and the Future of Food and Agriculture
ENVS 0150	Climate Futures and Just Transitions
SOC 0250	An Environmental Sociology for a Rapidly Warming World

Environmental Policy and Politics - pick one 1

Courses focused on the policy, politics and/or governance of environmental issues

ANTH 1601	Reimagining Climate Change
ENVS 0715	Political Ecology
ENVS 0717	Ocean Resilience: Ecology, Management, and Politics
ENVS 1350	Environmental Economics and Policy
ENVS 1555	Local Food Systems and Urban Agriculture
ENVS 1574	Climate Policy Research: Organizations and Obstruction
ENVS 1580	Environmental Stewardship and Resilience in Urban Systems
ENVS 1615	Making Connections: The Environmental Policy Process
ENVS 1805	Ocean Governance and Policy
ENVS 1925	Energy Policy and Politics
POLS 1015	Politics and Nature
POLS 1435	Politics of Climate Change
POLS 1822I	Geopolitics of Oil and Energy

Environmental History and Humanities - pick one 1

Courses focused on the role of history, culture, and the arts in the environment

ARCH 0680	Water, Culture and Power
ENGL 1160P	Writing Climate, Writing Community
ENGL 1190U	Nature Writing
ENVS 1554	Farm Planet: Hunger, Development, and the Future of Food and Agriculture
ENVS 1557	Birding Communities
ENVS 1825	Commodity Natures: Supply Chains From Extraction to Waste and Alternatives to Endless Growth
ENVS 1910	The Anthropocene: The Past and Present of Environmental Change
ENVS 1916	Animals and Plants in Chinese History
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 1360	Amazonia from the Prehuman to the Present
HIST 1820B	Environmental History of East Asia
HIST 1974D	River Histories: Fishes, Floods and the Transformation of Freshwater Ecosystems
HIST 1976I	Imperialism and Environmental Change

HIST 1976J	Earth Histories: From Creation to Countdown
PHUM 1904	Power + Water: Material Culture and its Environmental Impact
RELS 0260	Religion Gone Wild: Spirituality and the Environment

Total Credits 12-13

¹ 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 12-13 course requirements as listed in the A.B. Program 12-13

Please note - courses already chosen to fulfill AB requirements cannot be used for an ScB focus area as well.

Additional Track specific requirements for the Sc.B. 5

TRACK 1 - Climate and Energy

This track is intended for students interested in climate change science, energy systems, and energy/climate change policy

FOUNDATIONS - pick two

These courses serve as a foundation to understanding energy, climate systems, and data analysis ¹

APMA 0160	Introduction to Scientific Computing
CSCI 0111	Computing Foundations: Data
CSCI 0190	Accelerated Introduction to Computer Science
CHEM 0330	Equilibrium, Rate, and Structure
EEPS 0240	Earth: Evolution of a Habitable Planet
EEPS 0250	Computational Approaches to Modelling and Quantitative Analysis in Natural Sciences: An Introduction
ENGN 0030	Introduction to Engineering
ENGN 0032	Introduction to Engineering: Design
ENGN 0490	Fundamentals of Environmental Engineering
ENGN 0510	Electricity and Magnetism
ENGN 0810	Fluid Mechanics
PHYS 0030	Basic Physics A
PHYS 0050	Foundations of Mechanics

ENERGY, ENVIRONMENTAL TECH, & INFRASTRUCTURE - pick one

ENGN 0490	Fundamentals of Environmental Engineering
ENGN 1930U	Renewable Energy Technologies
ENGN 1931P	Energy and the Environment
ENVS 1400	Sustainable Design in the Built Environment
ENVS 1580	Environmental Stewardship and Resilience in Urban Systems

CLIMATE - pick one

EEPS 0830	Water in Our World
EEPS 0850	Weather and Climate
ENGN 1931R	The Chemistry of Environmental Pollution
ENVS 1247	Clearing the Air: Environmental Studies of Pollution

ENERGY & CLIMATE POLICY - pick one

ANTH 1601	Reimagining Climate Change
ECON 1340	Economics of Global Warming
ENVS 1574	Climate Policy Research: Organizations and Obstruction
ENVS 1925	Energy Policy and Politics
POLS 1435	Politics of Climate Change

POLS 1822I Geopolitics of Oil and Energy

TRACK 2 - Conservation Science and Natural Systems

This track is intended for students interested in ecological and conservation sciences²

ECOLOGY

BIOL 0420 Principles of Ecology

CONSERVATION

BIOL 1470 Conservation Biology

ORGANISMAL DIVERSITY, ECOLOGY & CONSERVATION

TOPICS - pick one

BIOL 0410 Invertebrate Zoology

BIOL 0430 The Evolution of Plant Diversity

BIOL 0450 Evolutionary Behavioral Ecology

BIOL 0480 Evolutionary Biology

BIOL 0940D Rhode Island Flora: Understanding and Documenting Local Plant Diversity

BIOL 1480 Terrestrial Biogeochemistry and the Functioning of Ecosystems

BIOL 1515 Conservation in the Genomics Age

ENVS 1775 Biogeography

POLITICS & HISTORY OF NATURAL SYSTEMS - pick one

ENVS 0715 Political Ecology

ENVS 0717 Ocean Resilience: Ecology, Management, and Politics

ENVS 1232 Land Matters: Stewardship, Sovereignty, and Justice on the Ground

ENVS 1555 Local Food Systems and Urban Agriculture

ENVS 1805 Ocean Governance and Policy

ENVS 1916 Animals and Plants in Chinese History

HIST 1974D River Histories: Fishes, Floods and the Transformation of Freshwater Ecosystems

POLS 1015 Politics and Nature

POLS 1435 Politics of Climate Change

TRACK 3 - Environmental Justice and Health

This track is intended for students interested in exploring environmental issues through a justice/equity lens

RACE, CLASS, & GENDER INEQUALITY - pick one

Any class focused on race, class, or gender - these courses do not have an environmental theme

AFRI 0090 An Introduction to Africana Studies

AFRI 1920 Health Inequality in Historical Perspective

ANTH 1624 Indians, Colonists, and Africans in New England

ECON 1370 Race and Inequality in the United States

ETHN 1000 Introduction to American/Ethnic Studies

GNSS 0120 Introduction to Gender and Sexuality Studies

HIST 0150D Refugees: A Twentieth-Century History

SOC 0230 Sex, Gender, and Society

SOC 1270 Race, Class, and Ethnicity in the Modern World

ENVIRONMENTAL JUSTICE & EQUITY - Pick 2

These courses focus on environmental issues through a justice and/or equity lens

ANTH 1601 Reimagining Climate Change

ENVS 0150 Climate Futures and Just Transitions

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

ENVS 1232 Land Matters: Stewardship, Sovereignty, and Justice on the Ground

ENVS 1247 Clearing the Air: Environmental Studies of Pollution

ENVS 1554 Farm Planet: Hunger, Development, and the Future of Food and Agriculture

SOC 0250 An Environmental Sociology for a Rapidly Warming World

FOUNDATIONS IN HEALTH & INEQUALITY - pick one

These courses offer a foundation or an additional tool to study environmental health and inequality

ANTH 1940 Ethnographic Research Methods

EEPS 1320 Introduction to Geographic Information Systems for Environmental Applications

PHP 0310 Health Care in the United States

PHP 0320 Introduction to Public Health

PHP 0330 Public Health Policy

PHP 0400 Intro. to Health Disparities & Making Connection btw Structure, Social Determinants&Health Equity

PHP 1650 Race, Racism and Health

PHP 1920 Social Determinants of Health

SOC 1020 Methods of Social Research

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

ENVIRONMENTAL HEALTH - pick one

These courses focus specifically on public health and the environment

PHP 0720 Public Health and the Environment

PHP 1070 Global Burden of Disease

PHP 1101 World of Food: Personal to Global Perspectives on Nutrition, Agriculture and Policy

Future course offerings from Professor Rachel Backer and Allan Just

TRACK 4 - Sustainable Development & Governance

This track is intended for students interested in the interplay between environmental governance and economics on the global stage, with an emphasis on the non-Western world

GLOBAL GOVERNANCE & DEVELOPMENT - pick one

Courses focused on global governance or development (some are non environmental)

ENVS 0717 Ocean Resilience: Ecology, Management, and Politics

IAPA 1001 Foundations of Development

IAPA 1401 Economic Development in Latin America

IAPA 1404 Economic Development of China and India

POLS 0200 Introduction to Comparative Politics

POLS 0400 Introduction to International Politics

POLS 1435 Politics of Climate Change

POLS 1440 Security, Governance and Development in Africa

POLS 1500 The International Law and Politics of Human Rights

POLS 1822I Geopolitics of Oil and Energy

POLS 1826B Political Economy of Development

SOC 1490 Power, Knowledge and Justice in Global Social Change

ENVIRONMENT, JUSTICE, & NON-WESTERN PERSPECTIVES - pick two

Any class focused on the Environment and the Global South and/or other non-Western perspectives

ANTH 1601	Reimagining Climate Change
ENVS 0705	Equity and the Environment: Movements, Scholarship, Solutions
ENVS 0150	Climate Futures and Just Transitions
ENVS 1232	Land Matters: Stewardship, Sovereignty, and Justice on the Ground
ENVS 1554	Farm Planet: Hunger, Development, and the Future of Food and Agriculture
ENVS 1580	Environmental Stewardship and Resilience in Urban Systems
ENVS 1825	Commodity Natures: Supply Chains From Extraction to Waste and Alternatives to Endless Growth
ETHN 1751A	Indigenous Laws, Environmental Racism, and LandBack
HIST 1360	Amazonia from the Prehuman to the Present
PHUM 1904	Power + Water: Material Culture and its Environmental Impact

ECONOMIC PERSPECTIVES - pick one

These courses are intermediate-level economic tools courses

ECON 1110	Intermediate Microeconomics
ECON 1340	Economics of Global Warming
ENVS 1350 or ECON 1350	Environmental Economics and Policy
ECON 1355	Environmental Issues in Development Economics
ECON 1410	Urban Economics
ECON 1500	Current Global Macroeconomic Challenges
ECON 1530	Health, Hunger and the Household in Developing Countries
ECON 1560	Economic Growth

FINANCE & ECONOMIC PERSPECTIVES - pick one

These courses are either intermediate-level economic tools courses, courses focused on sustainable investing and finance, or the social science of economics systems

ECON 1110	Intermediate Microeconomics
ECON 1340	Economics of Global Warming
ECON 1350 or ENVS 1350	Environmental Economics and Policy
ECON 1355	Environmental Issues in Development Economics
ECON 1410	Urban Economics
ECON 1500	Current Global Macroeconomic Challenges
ECON 1530	Health, Hunger and the Household in Developing Countries
ECON 1560	Economic Growth
ENVS 1207	Eco-Entrepreneurship
ENVS 1545	The Theory and Practice of Sustainable Investing
ENVS 1547	Finance and the Environment
HIST 0150A	History of Capitalism
IAPA 1701Y	Climate Change, Power, & Money
PHIL 1561	Ethics, Economics, and the Future

Total Credits **17-18**

¹ Students can use a prerequisites for any of the courses selected to fulfill an "Elective" requirement.

² Most students with an intention of going to grad school in this field will also need: At least one semester of calculus and a statistics course

³ Many AFRI, ETHN, and GNSS classes count with IBES Curriculum Committee approval.

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.