Environmental Studies

The Environmental Studies Program offers several interdisciplinary courses for students interested in broadening their understanding of environmental issues. These courses often are team-taught by faculty from various areas of study.

Students wishing to major in an environmental program have three options: environmental science (see below), environmental engineering sciences (see civil and environmental engineering), or environmental policy (see policy studies). In addition, chemical and biomolecular engineering majors may create a focus area in environmental engineering (see chemical and biomolecular engineering) and earth science majors may follow an environmental earth science track (see earth science).

Students seeking advice regarding environmental programs may contact Andre Droxler (andre@rice.edu), or the coordinator of the Center for the Study of Environment and Society (cses@rice.edu).

Degree Requirements for BA in Environmental Science

Environmental science is an interdisciplinary program that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues, as well as exposure to the technologies of pollution control. The double major is designed to accommodate:

- Students wishing to obtain a solid preparation for later graduate study in environmental science or other careers as environmental professionals (e.g., environmental economics or environmental law)
- Students pursuing other careers (e.g., historians, lawyers, mechanical engineers, chemists) who hope to contribute to solutions to one of the major global issues of the 21st century.

Students may take environmental science only as a second major. The 67-semester-hour (minimum) double major may be taken in conjunction with any stand-alone major offered in any school of the university.
The key components of the double major include:

- **Foundation course work in mathematics, physics, chemistry, and biology.**
- A set of five undergraduate core courses, required of all double majors, that acquaint undergraduates with a range of environmental problems encountered by scientists, engineers, managers, and policy makers. Core courses stress the components of the global environment and their interactions.
- **24 semester hours of environmental electives from four categories: 1) social sciences and economics, 2) humanities and architecture, 3) natural sciences, and 4) engineering. Students may petition to have electives, in addition to those currently listed, apply toward the double major.**

Major tracking forms are available in the Center for the Study of Environment and Society (CSES) office for declared environmental science majors.

Specific course requirements for a double major (BA) in environmental science include:

### General Prerequisites
- BIOS 201 Introductory Biology
- BIOS 202 Introductory Biology
- CHEM 121 or 151 General Chemistry with Laboratory
- CHEM 122 or 152 General Chemistry with Laboratory
- MATH 101 or 111 Single Variable Calculus I
- MATH 102 or 112 Single Variable Calculus II
- PHYS 101 or 125 or 111 Mechanics
- PHYS 102 or 126 or 112 Electricity and Magnetism

### Core Courses
- BIOS 325 Ecology
- ESCI 321 Earth System Evolution and Cycles
- **One of the following two courses**
  - CEVE 411 Air Resource Management
  - PHYS 203 Atmosphere, Weather, and Climate
- **Two of the following three courses**
  - CEVE 401 Introduction to Environmental Chemistry
  - CEVE 412 Hydrology and Watershed Analysis
  - ESCI 454/CEVE 453 Geographic Information Science

### Advanced Electives (24 hours; at least six semester hours from each category)

#### Category A—Social Sciences and Economics
- CEVE 306 Global Environmental Law and Sustainable Development
- CEVE 406/ENST 406 Environmental Law
- ECON 480/ENST 480 Environmental Economics
- ENST 302/SOCI 304 Environmental Issues: Rice into the Future
- ENST 312 Environmental Battles in the 21st Century: Houston as a Microcosm
- POLI 317 The Congress
- POLI 331 Environmental Politics and Policy
- POLI 332 Urban Politics
- POLI 334 American Political Parties
- SOCI 313 Demography
- SOCI 367/ENST 367 Environmental Sociology

#### Category B—Humanities and Architecture
- ARCH 313/ENST 313 Sustainable Architecture
- ENGL 367 American Ecofeminism
- ENGL 368/ENST 368 Literature and the Environment
- ENST 301 Introduction to the Environment: Environmental History and Literature

#### Category C—Natural Sciences
- BIOS 316 Lab Module in Ecology
- BIOS 321 Animal Behavior
- BIOS 323/ENST 323 Conservation Biology
- BIOS 334 Evolution
- BIOS 336 Plant Diversity
- CHEM 211 Organic Chemistry
CHEM 395 Advanced Module in Green Chemistry
ESCI 323 Earth Structure and Deformation
ESCI 340/BIOS 340/ENST 340 Global Biogeochemical Cycles
ESCI 421 Paleoceanography
ESCI 430 Trace Element and Isotope Geochemistry for Earth and Environmental Sciences
ESCI 442 Exploration Geophysics
ESCI 450/CEVE 450 Remote Sensing
ESCI 454/CEVE 453 Geographic Information Science
ESCI 468/ANTH 468 Climate Variability and Human Response

Category D—Engineering
CEVE 201/HEAL 201 Urban and Environmental Systems
CEVE 203 Principles of Environmental Engineering
CEVE 315 Sustainable Technologies for Developing Countries

CEVE 401 Chemistry for Environmental Engineering and Science
CEVE 411 Atmospheric Processes
CEVE 412 Hydrology and Watershed Analysis
CEVE 434 Fate and Transport of Contaminants in the Environment
CEVE 451 Analysis of Environmental Data
CEVE 470 Basic Soil Mechanics
CEVE 490 Special Study and Research
ENST 307/CEVE 307/ESCI 307 Energy and the Environment
ENST 281/CHBE 281 Engineering Sustainable Communities
STAT 300 Model Building
STAT 305 Introduction to Statistics for the Biosciences
STAT 310/ECON 382 Probability and Statistics
PSYC 339 Statistical Methods—Psychology

See ENST in the Courses of Instruction section.