Environmental Sciences Undergraduate Major (BS, HBS)

Also available via Ecampus.

Larry C. Becker, Director
Environmental Sciences Undergraduate Program
104 CEOAS Administration Building
Oregon State University
Corvallis, OR 97331
541-737-1201
Email: ceoas.undergrad@oregonstate.edu
Website: http://ceoas.oregonstate.edu/academics/undergraduate/

Environmental Sciences

An Environmental Sciences undergraduate degree provides a rigorous education that can lead to helping to understand and resolve some of today’s most challenging scientific and policy issues—including global climate change, pollution, biodiversity conservation, sustainability, and balancing resource use and preservation. To help reach these objectives, the Bachelor of Science in Environmental Sciences offers an interdisciplinary approach to environmental problem solving. As an Environmental Sciences major, a student completes course work in four general areas:

1. OSU's general education courses (the baccalaureate core)
2. Basic science and math
3. Environmental sciences and humanities core
4. A specialization area

In addition, each student completes a minimum of 3 credits of experiential learning as an internship, research, study abroad, or field course. The BS degree in Environmental Sciences provides excellent training for a variety of careers—including work with federal, state, and local agencies, industry, non-profits, and education—or for graduate school. Students can pursue the BS degree either at the Corvallis campus or online through OSU Ecampus.

Major Curriculum

The Environmental Sciences major requires credits in seven categories: 48 credits of baccalaureate core; 51–53 credits of basic science and math; 27–36 credits of environmental sciences and humanities; 27–31 credits of specialization; 3 credits writing intensive course; 3 credits minimum of experiential learning; and 4–53 credits of elective courses (depends on the number of baccalaureate core electives that will also meet requirements of the major).

Baccalaureate Core

The university baccalaureate core course (BCC) requirement is met with 48 credits and a writing intensive course (WIC). The environmental sciences student satisfies the general education requirement by selecting 27–36 credits of environmental sciences and humanities; 27–31 credits of specialization; 3 credits writing intensive course; 3 credits minimum of experiential learning; and 4–53 credits of elective courses (depends on the number of baccalaureate core electives that will also meet requirements of the major).

Environmental Sciences and Humanities Core

Natural Environmental Systems

Select one of the following atmosphere courses: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATS 201</td>
<td>*CLIMATE SCIENCE</td>
<td>4</td>
</tr>
<tr>
<td>ATS 310</td>
<td>METEOROLOGY</td>
<td></td>
</tr>
<tr>
<td>ATS 420</td>
<td>PRINCIPLES OF CLIMATE: PHYSICS OF CLIMATE AND CLIMATE CHANGE</td>
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</tr>
<tr>
<td>GEOG 323</td>
<td>^CLIMATOLOGY</td>
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Select one biosphere course: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BI 370</td>
<td>ECOLOGY</td>
<td>3</td>
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</table>

Select one of the following geosphere courses: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CSS 205</td>
<td>*SOIL SCIENCE</td>
<td>3-4</td>
</tr>
<tr>
<td>GEO 202</td>
<td>*EARTH SYSTEMS SCIENCE</td>
<td></td>
</tr>
<tr>
<td>GEO 221</td>
<td>*ENVIRONMENTAL GEOLOGY</td>
<td></td>
</tr>
<tr>
<td>GEO 322</td>
<td>SURFACE PROCESSES</td>
<td></td>
</tr>
<tr>
<td>GEOG 102</td>
<td>^PHYSICAL GEOGRAPHY</td>
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Basic Science and Math Courses

Select one of the following options: 12

<table>
<thead>
<tr>
<th>Option</th>
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<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Option A</td>
<td>BI 211</td>
<td>*PRINCIPLES OF BIOLOGY</td>
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<tr>
<td>Option B</td>
<td>BI 212</td>
<td>*PRINCIPLES OF BIOLOGY</td>
<td>4</td>
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<tr>
<td>Option A</td>
<td>BI 213</td>
<td>*PRINCIPLES OF BIOLOGY</td>
<td>4</td>
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<tr>
<td>Option B</td>
<td>BI 204</td>
<td>*INTRODUCTORY BIOLOGY I</td>
<td>4</td>
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<tr>
<td>Option B</td>
<td>BI 205</td>
<td>*INTRODUCTORY BIOLOGY II</td>
<td>4</td>
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<tr>
<td>Option B</td>
<td>BI 206</td>
<td>*INTRODUCTORY BIOLOGY III</td>
<td>4</td>
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Select one of the following option: 15

<table>
<thead>
<tr>
<th>Option</th>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Option A</td>
<td>CH 121</td>
<td>GENERAL CHEMISTRY</td>
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<tr>
<td>Option A</td>
<td>CH 122</td>
<td>*GENERAL CHEMISTRY</td>
<td>4</td>
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<tr>
<td>Option A</td>
<td>CH 123</td>
<td>*GENERAL CHEMISTRY</td>
<td>4</td>
</tr>
<tr>
<td>Option B</td>
<td>CH 231</td>
<td>GENERAL CHEMISTRY</td>
<td>4</td>
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<tr>
<td>Option B</td>
<td>CH 232</td>
<td>GENERAL CHEMISTRY</td>
<td>4</td>
</tr>
<tr>
<td>Option B</td>
<td>CH 233</td>
<td>GENERAL CHEMISTRY</td>
<td>4</td>
</tr>
<tr>
<td>Option B</td>
<td>CH 261</td>
<td>*LABORATORY FOR CHEMISTRY 231</td>
<td></td>
</tr>
<tr>
<td>Option B</td>
<td>CH 262</td>
<td>*LABORATORY FOR CHEMISTRY 232</td>
<td></td>
</tr>
<tr>
<td>Option B</td>
<td>CH 263</td>
<td>*LABORATORY FOR CHEMISTRY 233</td>
<td></td>
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<tr>
<td>Option B</td>
<td>MTH 251</td>
<td>*DIFFERENTIAL CALCULUS</td>
<td>4</td>
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<tr>
<td>Option B</td>
<td>MTH 252</td>
<td>INTEGRAL CALCULUS</td>
<td>4</td>
</tr>
<tr>
<td>Option B</td>
<td>MTH 268</td>
<td>MATHEMATICAL IDEAS IN BIOLOGY</td>
<td>4</td>
</tr>
</tbody>
</table>

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GEOG 350 *GEOGRAPHY OF NATURAL HAZARDS
SOIL 205 SOIL SCIENCE
& SOIL 206 and *SOIL SCIENCE LABORATORY FOR SOIL 205
SOIL 395 *WORLD SOIL RESOURCES

Select one of the following hydrosphere courses: 3-5
FW 456 FRESHWATER ECOLOGY AND CONSERVATION
GEOG 340 *INTRODUCTION TO WATER SCIENCE AND POLICY
GEO 487 HYDROGEOLOGY
OC 201 *OCEANOGRAPHY

Humans and the Environment

Select one of the following economics courses: 3-4
AEC 250 *INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY
ECON 201 *INTRODUCTION TO MICROECONOMICS
ECON 202 *INTRODUCTION TO MACROECONOMICS
FW 462 ECOSYSTEM SERVICES

Select one of the following ethics and environmental ethics courses: 3-4
ANTH 481 *NATURAL RESOURCES AND COMMUNITY VALUES
CH 374 *TECHNOLOGY, ENERGY, AND RISK
ES 353 *ENVIRONMENTAL RACISM
ES 448 NATIVE AMERICAN PHILOSOPHIES
or PHL 448 NATIVE AMERICAN PHILOSOPHIES
& REL 448 and NATIVE AMERICAN PHILOSOPHIES
FES 435 *GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK
or TOX 435 *GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK
FES 485 *CONSENSUS AND NATURAL RESOURCES
FW 340 *MULTICULTURAL PERSPECTIVES IN NATURAL RESOURCES
GEO 309 *ENVIRONMENTAL JUSTICE
PHL 325 *SCIENTIFIC REASONING
PHL 439 PHILOSOPHY OF NATURE
PHL 440 *ENVIRONMENTAL ETHICS
PHL 443 *WORLD VIEWS AND ENVIRONMENTAL VALUES
or REL 443 *WORLD VIEWS AND ENVIRONMENTAL VALUES
PS 461 ENVIRONMENTAL POLITICAL THEORY
SOC 456 *SCIENCE AND TECHNOLOGY IN SOCIAL CONTEXT
SOC 480 *ENVIRONMENTAL SOCIOLOGY
SOC 481 *SOCIETY AND NATURAL RESOURCES
WGSS 440 *WOMEN AND NATURAL RESOURCES

Select one of the following human environment courses: 3-4
AG 301 *ECOSYSTEM SCIENCE OF PACIFIC NW INDIANS
BI 301 *HUMAN IMPACTS ON ECOSYSTEMS
BI 348 *HUMAN ECOLOGY
ENSC 479 **ENVIRONMENTAL CASE STUDIES
FW 325 *GLOBAL CAUSES IN RESOURCE ECOLOGY
GEO 308 *GLOBAL CHANGE AND EARTH SCIENCES
FW 470 *ECOLOGY AND HISTORY: LANDSCAPES OF THE COLUMBIA BASIN
GEOG 203 *HUMAN-ENVIRONMENT GEOGRAPHY
GEOG 300 *SUSTAINABILITY FOR THE COMMON GOOD
GEOG 431 GLOBAL RESOURCES AND DEVELOPMENT
GEOG 450 LAND USE IN THE AMERICAN WEST
HST 481 *ENVIRONMENTAL HISTORY OF THE UNITED STATES
SUS 102 *INTRODUCTION TO ENVIRONMENTAL SCIENCE AND SUSTAINABILITY
SUS 350 *SUSTAINABLE COMMUNITIES
WGSS 440 *WOMEN AND NATURAL RESOURCES
Z 349 *BIODIVERSITY: CAUSES, CONSEQUENCES, AND CONSERVATION

Select one of the following environmental law and policy: 3-4
AEC 253 *ENVIRONMENTAL LAW, POLICY, AND ECONOMICS
AEC 351 *NATURAL RESOURCE ECONOMICS AND POLICY
AEC 352 *ENVIRONMENTAL ECONOMICS AND POLICY
or ECON 352 *ENVIRONMENTAL ECONOMICS AND POLICY
AEC 432 ENVIRONMENTAL LAW
FOR 462 NATURAL RESOURCE POLICY AND LAW
FW 415 FISHERIES AND WILDLIFE LAW AND POLICY
FW 422 INTRODUCTION TO OCEAN LAW
GEOG 340 *INTRODUCTION TO WATER SCIENCE AND POLICY
PS 475 ENVIRONMENTAL POLITICS AND POLICY
PS 476 *SCIENCE AND POLITICS
PS 477 INTERNATIONAL ENVIRONMENTAL POLITICS AND POLICY
SOC 360 *POPULATION TRENDS AND POLICY
WGSS 440 *WOMEN AND NATURAL RESOURCES

Select one of the following environmental management courses: 3-4
BOT 413 FOREST PATHOLOGY
or FOR 413 FOREST PATHOLOGY
FES 350 URBAN FORESTRY
or HORT 350 URBAN FORESTRY
FES 355 MANAGEMENT FOR MULTIPLE RESOURCE VALUES
FES 365 *ISSUES IN NATURAL RESOURCES CONSERVATION
FES 412 FOREST ENTOMOLOGY
FES 445 ECOLOGICAL RESTORATION
or FW 445 ECOLOGICAL RESTORATION
FOR 346 TOPICS IN WILDLAND FIRE
FW 251 PRINCIPLES OF FISH AND WILDLIFE CONSERVATION
FW 323 MANAGEMENT PRINCIPLES OF PACIFIC SALMON IN THE NORTHWEST
FW 326 INTEGRATED WATERSHED MANAGEMENT
FW 435 *WILDLIFE IN AGRICULTURAL ECOSYSTEMS
FW 464 MARINE CONSERVATION BIOLOGY
GEO 306 *MINERALS, ENERGY, WATER, AND THE ENVIRONMENT
GEOG 430 RESILIENCE-BASED NATURAL RESOURCE MANAGEMENT
GEOG 441 INTERNATIONAL WATER RESOURCES MANAGEMENT
GEOG 440  WATER RESOURCES MANAGEMENT IN THE UNITED STATES
GEOG 452  SUSTAINABLE SITE PLANNING
NR 455  NATURAL RESOURCE DECISION MAKING
RNG 341  RANGELAND ECOLOGY AND MANAGEMENT
RNG 355  DESERT WATERSHED MANAGEMENT
RNG 421  WILDLAND RESTORATION AND ECOLOGY
RNG 455  RIPARIAN ECOHYDROLOGY AND MANAGEMENT
RNG 490  RANGELAND MANAGEMENT PLANNING

Experiential Learning
Select 3 credits  

Specialization Area
Select 27 credits  

Total credits required for graduation  

1 The program must contain at least one course, internship, or research experience that provides opportunities for hands-on experience in design and collection of observations in the physical, biological or social environment. Students are urged to work with advisors at an early stage in their study to identify courses or experiences that are appropriate.

2 This requirement can be met by completing an approved certificate, option, or minor from a participating program in the environmental or closely related sciences, or working with advisors to develop an innovative course cluster to analyze environmental systems.

* Baccalaureate Core Course (BCC)
^ Writing Intensive Course (WIC)

Specialization Area
Approved Certificates:
  • Geographic Information Science

Approved Options (All options under the Environmental Sciences major):
  • Alternative Energy
  • Applied Ecology (EC)
  • Aquatic Biology (EC)
  • Conservation, Resources, and Sustainability (EC)
  • Earth Systems (EC)
  • Environmental Agriculture (EC)
  • Environmental Policy and Economics (EC)
  • Environmental Science Education
  • Environmental Water Resources (EC)

Note: EC Available via Ecampus

Major Code: 657