CATALOG NARRATIVE

ENVIRONMENTAL STUDIES PROGRAM (Updated February 3, 2011)

Ellensburg
Science 207D
(509) 963-2164
FAX: 509-963-1050
www.cwu.edu/~enst

Director
Anne Johansen, PhD

Program Information

The Environmental Studies program at CWU was established over 30 years ago to provide an interdisciplinary approach to the study of environmental issues. The Environmental Studies program is administered through the College of the Sciences and has options for both a major (BS) in five areas of specialization and two minors, including a minor in energy studies. The program core features team-taught courses including General Education courses that are taught by faculty from multiple disciplines.

Bachelor of Science

Environmental Studies Major

The major in environmental studies provides students with an understanding of the natural science of environmental issues as well as the social, political, and economic factors that contribute to policy and planning decisions. Through this major, students will gain the necessary professional and technical skills for entry into successful environmental careers or for graduate studies in environmental fields. The major offers five specialization options in environmental biology, environmental chemistry, environmental geology, environmental geography, and environmental policy.

Requirements for Major (BS) in Environmental Studies

The requirements for the major in Environmental Studies have three parts: 1) Foundational courses in supporting disciplines. Some of these courses also serve as prerequisites for courses within the specializations. These foundational courses must be completed before students take ENST 304. 2) A core requirement consisting of six interdisciplinary ENST courses, two upper level electives, and a capstone experience outside of the classroom (research, internship, service learning, or study abroad). 3) A specialization consisting of 6-9 courses that focus on one area of study.

Requirements for a double major with BS in Environmental Studies
The following double major combinations will have the environmental studies specialization course requirements waived for the BS degree in environmental studies; all environmental studies foundation and core course requirements must be completed. Required courses for the first degree major may not be used to fulfill upper-division environmental studies elective requirements (7-10 credits).

Bachelors Degree (Disciplinary)
Bachelors Degree (Environmental Studies)

BS Environmental Geological Sciences
BS Environmental Studies: Environmental Geology Specialization

BS Biology
BS Environmental Studies: Environmental Biology Specialization

BS Chemistry
BS Environmental Studies: Environmental Chemistry Specialization

BS Public Policy
BS Environmental Studies: Environmental Policy Specialization

The interdisciplinary major in public policy (BS) may be combined with the environmental studies specialization in environmental policy by completing the specific course requirements for both majors. Students who combine majors in public policy and environmental studies with a specialization in environmental policy will receive a bachelors of science degree in public policy and a bachelors of science degree in environmental studies. As some public policy requirements and electives count toward both degrees or majors, the actual amount of additional coursework needed to fulfill the requirements of the second degree or major may be as low as 19 credits.

Students may complete more than one specialization within the environmental studies major. To be eligible for a second specialization, a minimum of 20 unique credits must be completed. Unique means the credits have not been used as part of any other environmental studies specialization.
Foundational courses (Required)

BIOL 101/101 Lab or BIOL 181/181 Lab or BIOL 200 .................................. 5
CHEM 101/101 Lab or CHEM 111/111 Lab or CHEM 181/181 Lab............. 5
GEOG 101 or GEOG 107 or GEOL 101 or GEOL 102 or GEOL 108......... 5
ANTH 130 or GEOG 108......................................................................... 5
ECON 101 or ECON 201......................................................................... 5

Subtotal Foundational Credits: 25

Core courses (Required)

ENST 201 Earth as an Ecosystem
    or ENST 202 Ecosystems, Resources, Populations, and Culture......... 5
ENST 210 The Global Environment from a Local Perspective............... 5
ENST 303 Environmental Management............................................... 5
ENST 304 Environmental Methods and Analysis............................... 5
ENST 330 Environmental Leadership and Advocacy (5)..................... 3-5
    or ENST 455 Environmental Literature (3)
ENST 444 Environmental Policy Formulation...................................... 4
ENST 495 or other 495 Senior Research............................................. 3-5
    or ENST 490 Cooperative Education
    or UNIV 309 Service Learning
    or Study Abroad
Upper level electives........................................................................... 7-10

Select two of the following courses for the upper level electives. These courses cannot be used to fulfill specialization requirements:

ANTH/GEOG 440 Ecology and Culture
ANTH 398 Anthropological Perspectives on the Environment
ANTH/GEOG 498 Native American Resource Issues
BIOL 302 Human Ecology
BIOL 362 Biomes of the Pacific Northwest
ECON 462 Economics of Energy, Resources, and Environment
GEOG 303 Introductory GIS
GEOG 343 Energy Resource Alternatives
GEOG 448 Resource and Environmental Analysis
GEOL 302 Oceans and Atmosphere
GEOL 380 Environmental Geology and Natural Hazards
CMGT 452 LEED in Sustainable Construction
HIST 454 American Environmental History
PHIL 306 Environmental Ethics

Subtotal Core Credits: 37-44
Select one of the following specializations:

**Environmental Biology Specialization** 33-34 credits
BIOL 181/181 Lab and CHEM 181/181 Lab are required as foundational courses for this specialization.

BIOL 182/182 Lab Biology 2 (5)
BIOL 183 Biology 3 (5)
CHEM 182 and CHEM 183 and LABS General Chemistry (10)
BIOL 213 Quantitative Methods in Biology (4)
BIOL 360 General Ecology (5)

Choose 1 field course from: (4-5)
- BIOL 362 Biomes of the Pacific Northwest
- BIOL 377 and LAB Regional Natural History
- BIOL 462 Wildlife and Fisheries Ecology
- BIOL 463 Limnology
- BIOL 464 Terrestrial Plant Ecology
- BIOL 466 Conservation Biology
- BIOL 467 Biological Field Methods

**Environmental Chemistry Specialization** 30 credits
CHEM 181/181 Lab is required as a foundational course for this specialization.

CHEM 182/182 Lab General Chemistry I (5)
CHEM 183/183 Lab General Chemistry II (5)
CHEM 332 Quantitative Analysis (5)
CHEM 345 Environmental Chemistry (5)
MATH 154 Precalculus II (5)

Select one course from: (5)
- GEOL 425 Environmental Geochemistry (5)
- BIOL 220 Introductory Cellular Biology (5)
- BIOL 332 Introductory Microbiology (5)
- CHEM 452 Instrumental Analysis (5)

**Environmental Geology Specialization** 32-33 credits
GEOL 101 or GEOL 102 or GEOL 108 is required as a foundational course for this specialization.

GEOL 200 Earth Evolution and Global Change (5)
GEOL 302 Oceans and Atmosphere (4)
GEOL 380 Environmental Geology and Natural Hazards (4)
GEOL 386 Geomorphology (5)
GEOL 445 Hydrogeology (5)
MATH 154 Precalculus II (5)

Choose one field course from: (4-5)
- GEOL 210 Introduction to Geological Field Methods (4)
- GEOL 377 and LAB Regional Natural History (5)
**Environmental Geography Specialization**  
28-30 credits  

GEOG 107 is required as a foundational course for this specialization.

Choose three of the following physical geography courses: (15)  
- GEOG 361 – Soils (5)  
- GEOG 382 – Hydrology (5)  
- GEOG 386 – Geomorphology (5)  
- GEOG 388 – Climatology (5)  
- GEOG 389 - Ecosystems Geography (5)  
- GEOG 453 - Wetlands Analysis (5)

Choose two of the following techniques courses: (9-10)  
- GEOG 303 - Introductory GIS (5)  
- GEOG 409 - Quantitative Methods in Geography (5)  
- GEOG 330 - Airphoto Interpretation (4)  
- GEOG 430 - Remote Sensing (5)

Choose one of the following courses: (5)  
- GEOG 450 - Geography of Arid Lands (5)  
- GEOG 451 - Mountain Environments (5)  
- GEOG 452 - Coastal Environments (5)  
- GEOG 454 - Forest Environments (5)  
- GEOG 479 - Geography of the West (5)

**Environmental Policy Specialization**  
38-40 credits  

ECON 201 is required as a foundation course.

ENST 460 - Environmental Law (5)  
POSC 320 - Public Administration (5)  
POSC 325 - Introduction to Public Policy (3)  
POSC 429 - Research Seminar in Public Policy (3)  
ECON 462 - Economics of Energy, Resources, and Environment (5)  
GEOG 445 - Natural Resources Policy (4)

Select one of the following research tools courses: (5)  
- BUS 221 - Introductory Business Statistics (5)  
- MATH 311 - Statistical Concepts and Methods (5)  
- PSY 362 - Introductory Statistics (5)  
- SOC 364 - Data Analysis in Sociology (5)

Select two of the following courses: (8-10)  
- GEOG 303 - Introductory GIS (5)  
- GEOG 305 - Introduction to Land Use Planning (5)  
- GEOG 373 - Water Resources (4)  
- POSC 318 - Political Parties and Interest Groups (5)  
- SOC 338 - Political Sociology (5)  
- GEOG 346 - Political Geography (4)  
- GEOG 442 - Alternative Energy Resources and Technology (5)
GEOG 443 - Energy Policy (5)
GEOG 448 - Resource and Environmental Analysis (5)
GEOG 481 - Urban Geography (5)
GEOL 380 - Environmental Geology and Natural Hazards (4)
HIST 454 - American Environmental History (5)
PHIL 306 - Environmental Ethics (5)
SOC 380 - Social Ecology (5)
GEOG/ANTH 440 - Ecology and Culture (4)

Total credits: 90-109 credits
**Environmental Studies Minor**

The Environmental Studies minor is designed primarily to serve undergraduate education and environmental literacy. Research and graduate education, and community education and service are other goals. Top priority is given to providing a large number of students with the opportunity to assess the nature, scope and complexities of present and impending environmental problems. Other objectives include the provision of public education programs on environmental issues and the stimulation of interdisciplinary research on environmental problems. The development of expertise as an environmental specialist can be pursued though the Environmental Studies major.

**Required Courses**

- ENST 201 - Earth as an Ecosystem ................................................................. 5
- or ENST 202 - Ecosystems, Resources, Population, and Culture
- ENST 210 - The Global Environment from a Local Perspective .................. 5
- ENST 303 - Environmental Management ...................................................... 5

Select two of the following courses ......................................................... 8-10

- ENST 304 – Environmental Methods and Analysis (5)
- ENST 310 – Energy and Society (5)
- ENST 330 – Environmental Leadership and Advocacy (5)
- ENST 444 - Environmental Policy Formulation (4)
- ENST 455 – Environmental Literature (3)

Approved Elective ...................................................................................... 3 to 5

**Total Credits:** 28 or more

Students choosing an Environmental Studies minor will propose an upper division elective course in consultation with, and subject to, the pre-approval of the ENST Director. This elective course must be taken for a grade and be in a department outside the student’s major. The following courses, however, will automatically be accepted without pre-approval provided they meet the other elective requirements: any other ENST course, ANTH/GEOG 440, BIOL 360, ECON 462, GEOG 445, HIST 454, SOC 380, POSC 320, or CHEM 345.

The minor requires that students finish with a minimum 2.0 GPA for their 28 or more program credits, and students must also earn at least a C- in each of the six courses that comprise their ENST program.

**Energy Studies Minor**

Students interested in investigating energy issues are encouraged to pursue the following interdisciplinary minor. The minor provides

1. an introduction to the technical concepts and language relevant to energy,
2. an investigation of current and projected energy use patterns and their associated environmental conflicts, and
3. a study of the legal, institutional, and economic factors that influence energy policy.

With the approval of the director of environmental studies, the student will select appropriate electives.
to meet personal and professional goals.

**Required Courses**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENST 310</td>
<td>Energy and Society</td>
<td>5</td>
</tr>
<tr>
<td>GEOG/IET 442</td>
<td>Alternative Energy Resources and Technology</td>
<td>5</td>
</tr>
<tr>
<td>GEOG 443</td>
<td>Energy Policy</td>
<td>5</td>
</tr>
<tr>
<td>GEOG/ENST/BIOL/IET 490</td>
<td>Cooperative Education</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 111</td>
<td>Introductory Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 111LAB</td>
<td>Introductory Physics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Select from the following courses:</td>
<td></td>
<td>5</td>
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<tr>
<td>IET 101</td>
<td>Modern Technology and Energy</td>
<td>(5)</td>
</tr>
<tr>
<td>ECON 101</td>
<td>Economic Issues</td>
<td>(5)</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Economics Micro</td>
<td>(5)</td>
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Select one of the following courses ........................................4-5

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<tbody>
<tr>
<td>CMGT 452</td>
<td>LEED Sustainable Construction</td>
<td>(4)</td>
</tr>
<tr>
<td>ECON 462</td>
<td>Economics of Energy, Resources and Environment</td>
<td>(5)</td>
</tr>
<tr>
<td>SCED 301</td>
<td>Interdisciplinary Science Inquiry</td>
<td>(5)</td>
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**Total Credits:** 31-32
Environmental Studies Courses

ENST 201. Earth as an Ecosystem (5). Introduction to the concept of our planet as a finite environment with certain properties essential for life. The dynamic nature of the earth’s physical, chemical, geological and biological processes and their interrelated “systems” aspects furnishes the thrust of this treatment.

ENST 202. Ecosystems, Resources, Population, and Culture (5). The physical and cultural dimensions of environmental problems with particular emphasis given to the interaction between ecosystems, basic resources, population dynamics, and culture.

ENST 210. Global Environment from a Local Perspective (4). Students will collect, analyze, and synthesize original field data in natural and behavioral science on environmental issues relevant to global and local communities. Prerequisite: ENST 201 or ENST 202.

ENST 298. Special Topics (1-6).

ENST 303. Environmental Management (5). Development of attitudes and perceptions of our environment. Examination of the economic, political and legal mechanisms and philosophical perspectives useful in managing the environment. Prerequisite: ENST 201 or ENST 202.

ENST 304. Environmental Methods and Analysis (5). Introduction to qualitative and quantitative methods in the social and natural sciences with emphasis on practical application to a variety of examples in the environment. This course requires extra fees. Prerequisite: ENST 201 or ENST 202.

ENST 310. Energy and Society (5). Through classroom and field experience, students will examine society's use of, and dependence upon, energy. Students will become more discerning citizens, able to take part in local, national and global energy discussions.

ENST 330. Environmental Leadership and Advocacy (5). Examines environmental groups, leadership models, and methods of environmental advocacy. Prerequisite: junior standing.

ENST 398. Special Topics (1-6).

ENST 444. Environmental Policy Formulation (4). Students will work together in interdisciplinary teams to formulate and justify policy measures they think appropriate to meet some environmental problem investigated. Prerequisite: (ENST 201 or 202) and ENST 303.

ENST 455. Environmental Literature (3). Survey of literary works that thematically explore human relationships with place and environment. Sampling of various themes and genres, with a focus on Pacific Northwest.

ENST 460. Environmental Law (5). Introduction to the content of U.S. environmental law and the principal legal approaches to deal with environmental problems including common-law, statutory, regulatory, and economic-incentive systems. Prerequisite: junior standing.

ENST 490. Cooperative Education (1-12). An individualized contracted field experience with business, industry, government, or social service agencies. This contractual arrangement involves a student learning plan, cooperating employer supervision, and faculty coordination. Prior approval required. May be repeated. Grade will be S or U.

ENST 491. Workshop (1-6).

ENST 495. Senior Research (3-5). Independent student research in environmental studies project under supervision of faculty sponsor. By permission only. May be repeated for up to 12 credits.

ENST 496. Individual Study (1-6). Prerequisite: permission of instructor.

ENST 498. Special Topics (1-6).
**ENST 499.** Seminar (1-5).

Related courses regularly offered in other departments include: ANTH 341 Native American Cultures of the Pacific Northwest, ANTH 347 Native American Cultures of North America, ENG 330 African America since 1865, and SOC 365 Minority Groups.