

2011-2012

What Is the Study of Environmental Science?

Environmental Science draws on basic knowledge of the physical, chemical, biological and quantitative aspects of natural systems. The knowledge of how natural systems work is applied to solving problems largely created by human activities. Often these problems are represented by disturbances in the functioning of natural systems. Humans are altering their own life-support systems – the air, the water and soil. The scale of disturbance ranges from the molecular and cellular to individuals, populations, ecosystems, and regional and global levels.

The Environmental Science major will acquire the scientific and problem solving skills needed to conserve and restore the natural environment.

Students of Environmental Science will go directly into an environmental science career or on to graduate school to further their study.

Why Should I Consider This Major?

Are you excited by how natural systems work? Do you want to solve the problems of the natural environment caused by human activities? Do you love to work outdoors? Do you love the sciences and scientific inquiry? Then Environmental Science is for you.

How to Declare:

Pre-major: Any student may declare as an Environmental Science pre-major. Forms are available at the Huxley College Office in ES 539.

Admissions: Environmental Science major admission is selective and based upon the following four criteria:

1. Completion of required preparatory courses
2. A brief essay in response to a given question
3. Relevant experience
4. Academic performance (GPA)

Preparatory Courses: (47-52 credits)

- | | |
|--|---|
| <input type="checkbox"/> CHEM 121 - General Chemistry I | <input type="checkbox"/> BIOL 204 - Introduction to Evolution, Ecology and Biodiversity |
| <input type="checkbox"/> CHEM 122 - General Chemistry II | <input type="checkbox"/> BIOL 205 - Introduction to Cellular and Molecular Biology |
| <input type="checkbox"/> CHEM 123 - General Chemistry III | <input type="checkbox"/> BIOL 206 - Introduction to Organismal Biology |
| <input type="checkbox"/> ECON 206 - Introduction to Microeconomics | <input type="checkbox"/> MATH 124 - Calculus and Analytic Geometry I |
| <input type="checkbox"/> One course from: | <input type="checkbox"/> Any BCOM or CCOM GUR requirement course |
| EGEO 203 - Physical Geography | <input type="checkbox"/> Any PLSC course |
| GEOL 211 - Physical Geology | |

Application Deadlines: Applications should be submitted to the Huxley College office by April 25 for admission summer or fall quarter; October 6 for admission winter quarter; and January 15 for admission spring quarter.

Advising Tips: Prospective environmental science majors are encouraged to meet with departmental advisor, Kathryn Patrick, to explore their environmental science interest and develop a plan of study. Students wishing to complete the Environmental Science major in four years should complete the general chemistry series during their freshman year and the general biology series during their sophomore year.

Contact Information:

Department Website:

<http://www.wwu.edu/huxley/>

Major Information

Undergraduate Advisor:

Kathryn Patrick

ES 539, 360-650-3520

Kathryn.Patrick@wwu.edu

Department Chair:

Leo Bodensteiner

ES 522, 360-650-7375

Leo.Bodensteiner@wwu.edu

Sample Careers:

Wildlife Biologist

Naturalist

Endangered Species Biologist

Environmental Inspector

Environmental Scientist

Fisheries Biologist

Marine Biologist

Safety and Health Specialist

Park Ranger

Aquatic Toxicologist

Wetlands Ecologist

Biological Survey

Water Resources Specialist

Environmental Chemist

Soil Conservation Specialist

Major/Career Resources:

http://www.careers.wwu.edu/students_choosingamajor.shtml

Environmental Science, BS (132-137 credits)

Students are advised to see the department for GPA requirements within the major.

Available Environmental Science Concentrations: Environmental Toxicology, Freshwater Ecology, Marine Ecology, and Terrestrial Ecology

Preparatory Courses (47-52 credits)

- BIOL 204 - INTRODUCTION TO EVOLUTION, ECOLOGY AND BIODIVERSITY
- BIOL 205 - INTRODUCTION TO CELLULAR AND MOLECULAR BIOLOGY
- BIOL 206 - INTRODUCTION TO ORGANISMAL BIOLOGY
- CHEM 121 - GENERAL CHEMISTRY I
- CHEM 122 - GENERAL CHEMISTRY II
- CHEM 123 - GENERAL CHEMISTRY III
- ECON 206 - INTRODUCTION TO MICROECONOMICS
- MATH 124 - CALCULUS AND ANALYTIC GEOMETRY I
- One course from:
 - EGEO 203 - PHYSICAL GEOGRAPHY
 - GEOL 211 - PHYSICAL GEOLOGY
- Any BCOM or CCOM GUR requirement course
- Any PLSC course

Major (85 credits)

- Choose either:
 - CHEM 251 - ELEMENTARY ORGANIC CHEMISTRY
 - or the following series:
 - CHEM 351 - ORGANIC CHEMISTRY
 - CHEM 352 - ORGANIC CHEMISTRY
 - CHEM 354 - ORGANIC CHEMISTRY LABORATORY I
- One course from:
 - ESCI 321 - OCEANOGRAPHY
 - ESCI 435 - LANDSCAPE ECOLOGY
 - ESCI 492 - CLIMATE CHANGE
 - EGEO 330 - GEOGRAPHY OF LANDFORMS
 - EGEO 331 - CLIMATOLOGY
 - EGEO 433 - CLIMATE AND BIOPHYSICAL PROCESSES
- One course from:
 - ESCI 325 - FUNDAMENTALS OF ECOLOGY
 - BIOL 325 - ECOLOGY
- One course from:
 - ESCI 340 - BIostatistical ANALYSIS
 - BIOL 340 - BIOMETRICS
- One course from:
 - ESCI 436 - ENVIRONMENTAL IMPACT ASSESSMENT
 - ESCI 470 - ECOLOGICAL RESTORATION
 - ESCI 490 - ENVIRONMENTAL RISK ASSESSMENT
 - ESCI 491 - OCEANOGRAPHY OF PUGET SOUND
 - ESTU 436 - ENVIRONMENTAL IMPACT ASSESSMENT
 - ESTU 470 - PLANNING STUDIO
 - ESTU 496 - ENVIRONMENTAL STEWARDSHIP
- One course from: (minimum of 10 credits; maximum of 15 credits)
 - ESCI 498A - SENIOR THESIS
 - ESCI 498B - INTERNSHIP
 - ESCI 498C - SENIOR PROJECT
 - ESCI 498D - INTERNATIONAL STUDY

- One course from two of the following categories:
 - Human Ecology, Geography:
 - ESTU 303 - HUMAN ECOLOGY AND SUSTAINABILITY
 - EGEO 311 - POPULATION AND RESOURCES
 - EGEO 314 - URBANIZATION: PROCESSES AND PATTERNS
 - Environmental Policy:
 - ESTU 304 - ENVIRONMENT AND RESOURCE POLICY
 - ESTU 320 - EXPLORATIONS IN ENVIRONMENTAL STUDIES
 - Environmental History, Philosophy, Ethics:
 - ESTU 305 - ENVIRONMENTAL HISTORY AND ETHICS
 - ESTU 488 - HISTORY OF CONSERVATION IN AMERICA
- Two lecture/lab courses or combination of courses from:
 - ESCI 321 - OCEANOGRAPHY and
 - ESCI 322 - OCEANOGRAPHY LABORATORY
 - ESCI 361 - WATER QUALITY and
 - ESCI 362 - WATER QUALITY LAB
 - ESCI 407 - FOREST ECOLOGY
 - ESCI 408 - FIELD METHODS IN WILDLIFE ECOLOGY
 - ESCI 410 - FORESTRY-FISH INTERACTIONS and
 - ESCI 411 - FOREST AND FISH ASSESSMENT
 - ESCI 421 - FISHERIES MANAGEMENT LAB and
 - ESCI 425 - ENVIRONMENTAL BIOLOGY OF FISHES
 - ESCI 423 - PAST ENVIRONMENTS OF THE PACIFIC NORTHWEST
 - ESCI 426 - MARINE INVERTEBRATES AND THEIR ENVIRONMENT
 - ESCI 428 - FRESHWATER ALGAE BIOINDICATORS
 - ESCI 429 - STREAM ECOLOGY
 - ESCI 430 - LIMNOLOGY AND LIMNOLOGY LAB
 - ESCI 440 - WETLANDS ECOLOGY
 - ESCI 442 - INTRODUCTION TO REMOTE SENSING
 - ESCI 455 - ENVIRONMENTAL TOXICOLOGY I and
 - ESCI 457 - ENVIRONMENTAL TOXICOLOGY LABORATORY I
 - ESCI 456 - ENVIRONMENTAL TOXICOLOGY II and
 - ESCI 458 - ENVIRONMENTAL TOXICOLOGY LABORATORY II
- Electives under advisement (28-37 credits)
 - A minimum of 20 credits from
 - ESCI 300- or 400-level
 - Additional electives, if needed from:
 - BIOL 300- or 400-level
 - CHEM 300- or 400-level
 - EGEO 300- or 400-level
 - ESCI 300- or 400-level
 - ESTU 300- or 400-level
 - FAIR 330E - ETHNOBOTANY
 - FAIR 332Q - TOPICS IN APPLIED CONSERVATION BIOLOGY
 - FAIR 434P - ADVANCED STUDIES IN FIELD SCIENCE
 - FAIR 435Q - ADVANCED MARINE BIRD POPULATION ECOLOGY
 - FAIR 463
 - FAIR 465
 - GEOL 300- or 400-level
 - MATH 125 - CALCULUS AND ANALYTIC GEOMETRY II
 - MATH 203 - LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS I
 - MATH 204 - ELEMENTARY LINEAR ALGEBRA
 - MATH 205 - LINEAR ALGEBRA WORKSHOP
 - MATH 207 - MATHEMATICAL COMPUTING
 - MATH 209 - DISCRETE MATHEMATICS
 - MATH 224 - MULTIVARIABLE CALCULUS AND GEOMETRY I
 - MATH 225 - MULTIVARIABLE CALCULUS AND GEOMETRY II
 - MATH 226 - LIMITS AND INFINITE SERIES
 - MATH 300- or 400-level
 - Maximum 3 courses allowed from:
 - PHYS 114 - PRINCIPLES OF PHYSICS I
 - PHYS 115 - PRINCIPLES OF PHYSICS II
 - PHYS 116 - PRINCIPLES OF PHYSICS III
 - PHYS 121 - PHYSICS WITH CALCULUS I
 - PHYS 122 - PHYSICS WITH CALCULUS II
 - PHYS 300- or 400-level

Other Environmental Sciences Options

Environmental Science Minor

Environmental Science Major with the following emphasis areas:

Environmental Science- Environmental Toxicology, BS

Environmental Science- Freshwater Ecology, BS

Environmental Science- Marine Ecology, BS

Environmental Science- Terrestrial Ecology, BS

General University Requirements (GUR):

The courses below are offered within this major and may also be used to satisfy GUR or Writing Proficiency Requirements.

QSR: MATH 124
SSC: ECON 206
LSCI: BIOL 204, 205, 206; CHEM 121, 122, 123, 251; EGEO 203; GEOL 211; PHYS 115, 116, 121, 122
SCI: PHYS 114

WP: Three Writing Proficiency points are required for graduation (noted as WP1, 2 and 3). Check *Classfinder* or *Online Timetable* for departmental offerings each quarter.

Academic Advising Center, a unit of Academic and Career Development Services
Old Main 380 360.650.3850 advising@wwu.edu

This document has been created for advising purposes only. Please contact the appropriate department for updates and changes.