

Environmental Science (BA/BS)

Work alongside world-class scholars and researchers, develop concrete skills and analytical abilities, and gain real-world experience with the environmental science major. You will learn from an interdisciplinary approach to the natural sciences—including biology, geology, chemistry, physical geography, and data analysis—and gain an understanding of how social sciences, policy, humanities, and design inform our approaches to solving environmental issues.

The environmental science major is flexible, allowing you to tailor coursework to meet your specific educational and career goals. We also prioritize practical learning experiences where you will link theory to practice and build transferable skills through internships, research, and community involvement. This major is designed for students who want to focus on careers in fields such as conservation biology; pollution prevention and abatement; climate and the atmosphere; water resources; and ecosystem protection, restoration, and management.

Program's Admission Requirements

Please visit the program's website (<https://cas.uoregon.edu/envs/apply>).

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Articulate the contributions from the social sciences, natural sciences, and humanities in understanding and addressing environmental issues.
- Discuss major root causes of environmental problems and avenues for addressing them.
- Discuss several key concepts within the field of environmental sciences (e.g., biodiversity and biological conservation, climate change, watershed health, water and nutrient cycles, energy flows), drawing on interdisciplinary perspectives.
- Demonstrate critical thinking and communication skills, including the ability to: a) Critically analyze environmental information, data and problems; b) Interpret scientific communication, including writing, figures, and tables; c) Synthesize diverse information sources; d) Communicate effectively through written and oral communication.

Environmental Science Major Requirements

The Environmental Science major is customizable, allowing students to tailor their coursework to meet specific education and career goals. Students can concentrate on a focal area of their choosing and select from a variety of courses across scientific and other disciplines. The major requires a minimum of 112 credits including 60 upper-division credits.

Except for ENVS 401-409, all courses applied to the major or minor must be graded, and a C- or better must be earned in all graded courses.

As many as four upper-division courses may be used to fulfill the requirements of another major. This limit only applies to courses with the same primary subject code as the second major.

Major requirements sheets containing detailed information about specific courses are available on the Environmental Studies website, in the Environmental Studies office, or by visiting an advisor in Tykeson Hall.

Check prerequisites for all upper-division courses. Environmental Science majors are not exempt from the required prerequisites.

Code	Title	Credits
Area 1. Lower-Division ESCI Core		
ENVS 201	Introduction to Environmental Studies: Social Sciences	4
ENVS 203	Introduction to Environmental Studies: Humanities	4
Area 2. Math and Statistics		
MATH 246	Calculus for the Biological Sciences I or MATH 251Z Differential Calculus	4
MATH 247	Calculus for the Biological Sciences II or MATH 252Z Integral Calculus	4
	Approved statistics course	4
ANTH 470	Statistical Analysis of Biological Anthropology	
ERTH 418	Earth and Environmental Data Analysis	
GEOG 495	Geographic Data Analysis	
MATH 425	Statistical Methods I	
SOC 312	Statistical Analysis in Sociology	
	Approved course in analytical approaches	4
BI 471	Population Ecology	
GEOG 481	GIScience I	
Area 3A. Natural Science		
	Two lower-division introductory sequences in focal area	24
	Up to three approved lower-division introductory courses in nonfocal area ¹	12
	Six upper-division natural science courses in focal area (life sciences or earth and physical sciences)	24
	At least two upper-division courses in nonfocal area ¹	8
Area 3B. Upper-Division Soc Sci, Policy, Humanities and Design		
	Three courses from the areas of social science, policy, humanities, or design (no more than one course per area)	12
Area 4. Environmental Issues		
ENVS 411	Environmental Issues: [Topic]	4
	or ENVS 425 Environmental Education Theory and Practice	
	or ENVS 427 Environmental and Ecological Monitoring	
Area 5. Practical Learning Experience		
	All ESCI majors must complete 4 upper-division credits that provide career or graduate school readiness skills.	4
ENVS 403	Thesis ²	
ENVS 404	Internship: [Topic] ³	
ENVS 429	Environmental Leadership: [Topic] ⁴	
OGWI 488	Overseas Studies: GlobalWorks Institute Internship (Internship) ⁴	
Total Credits		112

¹ Five courses total are required for nonfocal area.

² Required department and your faculty advisor approvals.

³ Required Internship Coordinator approval.

⁴ Required to submit an application.

Approved Courses - Area 3A: Natural Science

Code	Title	Credits
Life Sciences		
Lower-division introductory sequences		
BI 221Z & BI 222Z & BI 223Z	Principles of Biology I: Cells and Principles of Biology II: Organisms and Principles of Biology III: Ecology and Evolution	15
CH 221Z & CH 222Z & CH 223Z	General Chemistry I and General Chemistry II and General Chemistry III ¹	12
Lower-division Non-focal area		
CH 150Z	Preparatory Chemistry	4
Upper-division electives		
ANTH 341	Food Origins	4
ANTH 344	Oregon Archaeology	4
ANTH 361	Human Evolution	4
ANTH 362	Human Biological Variation	4
ANTH 369	Human Growth and Development	4
ANTH 463	Primate Behavior	4
ANTH 467	Paleoecology and Human Evolution	4
ANTH 472	Primate Conservation Biology	4
ANTH 487	Bioanthropology Methods	4
BI 307	Forest Biology	4
BI 357	Marine Biology	4
BI 359	Plant Biology	4
BI 370	General Ecology	4
BI 374		4
BI 380	Evolution	4
BI 390	Animal Behavior	4
BI 432	Mycology	5
BI 442	Systematic Botany	5
BI 448	Field Botany	4
BI 451	Invertebrate Zoology	1-10
BI 454	Estuarine Biology	5
BI 455	Marine Birds and Mammals	1-6
BI 457	Marine Biology: [Topic]	1-8
BI 458	Biological Oceanography	5
BI 472	Community Ecology	4
BI 474	Marine Ecology	1-8
CH 331	Organic Chemistry I	4
CH 335	Organic Chemistry II	4
CH 336	Organic Chemistry III	4
ENVS 350		4
ENVS 465	Wetland Ecology and Management	4
GEOG 323	Biogeography	4
GEOG 433	Fire and Natural Disturbances	4
Earth & Physical Sciences		
Lower-division introductory sequences		
ERTH 101 or ERTH 201	Exploring Planet Earth Dynamic Planet Earth	4

ERTH 102 or ERTH 202	Exploring Earth's Environment Earth's Surface and Environment	4
ERTH 103 or ERTH 203	Exploring Earth History History of Life	4
PHYS 201 & PHYS 202 & PHYS 203	General Physics and General Physics and General Physics ²	12
Lower-division Non-focal area		
GEOG 141	The Natural Environment	4
Upper-division electives		
ENVS 477	Soil Science	4
ERTH 304 or ERTH 305 or ERTH 306 or ERTH 307 or ERTH 308	The Fossil Record ³ Dinosaurs Volcanoes and Earthquakes Oceanography Geology of Oregon and the Pacific Northwest	4
ERTH 310	Earth Resources and the Environment	4
ERTH 311	Earth Materials	5
ERTH 315	Earth Physics	4
ERTH 316	Introduction to Hydrogeology	4
ERTH 319	Field Studies Oregon Geology	4
ERTH 331	Mineralogy	5
ERTH 332	Introduction to Petrology	5
ERTH 334	Sedimentology and Stratigraphy	4
ERTH 337		4
ERTH 353	Geologic Hazards	4
ERTH 418	Earth and Environmental Data Analysis	4
ERTH 434	Vertebrate Paleontology	4
ERTH 436	Paleoecology and Functional Morphology	4
ERTH 441	Hillslope Geomorphology	4
ERTH 451	Hydrogeology	4
ERTH 454	Fluid Dynamics	4
ERTH 455	Mechanical Earth	4
ERTH 468	Introduction to Seismology	4
ERTH 473	Isotope Geochemistry	4
ERTH 474	Soil and Environmental Chemistry	4
GEOG 321	Climatology	4
GEOG 322	Geomorphology	4
GEOG 360	Watershed Science and Policy	4
GEOG 361	Global Environmental Change	4
GEOG 421	Advanced Climatology: [Topic]	4
GEOG 423	Advanced Biogeography: [Topic]	4
GEOG 425	Hydrology and Water Resources	4
GEOG 427	Fluvial Geomorphology	4
GEOG 430	Long-Term Environmental Change	4
GEOG 482	GIScience II	4
GEOG 485	Remote Sensing I	4
GEOG 486	Remote Sensing II	4
GEOG 489	Mapping with Drones	4
GEOG 491	Advanced Geographic Information Systems	4

¹ Accompanying lab courses, CH 227Z-229Z, are optional but recommended.

² Accompanying lab courses, PHYS 204-206, are optional but recommended.

³ Only one course of EARTH 30x will count toward the major.

Approved Courses - Area 3B: Social Science, Policy, Humanities, and Sustainable Design and Practice

Code	Title	Credits
Social Science - Foundation Courses		
ENVS 435	Environmental Justice	4
ENVS 450	Political Ecology	4
ENVS 455	Sustainability	4
ES 354	Environmental Racism	4
GEOG 341	Population and Environment	4
SOC 416	Issues in Environmental Sociology: [Topic]	4
Policy - Foundation Courses		
ENVS 335	Allocating Scarce Environmental Resources	4
PPPM 443	Natural Resource Policy	4
PPPM 444	Environmental Policy	4
PS 367	Politics, Science, and Climate Change	4
PS 477	International Environmental Politics	4
Humanities - Foundation Courses		
ARH 368	Arts and Visual Cultures of Climate Change	4
ENG 469	Literature and the Environment: [Topic]	4
ENVS 435	Environmental Justice	4
ENVS 430	Nature in Popular Culture	4
HIST 378	American Environmental History to 1890	4
HIST 379	American Environmental History 1890 to Present	4
HIST 473	American Environmental History: [Topic]	4
PHIL 340	Environmental Philosophy	4
Sustainable Design and Practice - Foundation Courses		
ARCH 431	Community Design	3
ARCH 435	Principles of Urban Design	4
ARCH/ENVS 493M		4
ARCH/ENVS 494M	Passive Heating	4
ENVS 459	Water, Public Health, and the Environment	4
ENVS 467	Sustainable Agriculture	4
MGMT 422	Sustainable Business Strategy and Implementation	4
PPPM 442	Sustainable Urban Development	4
PPPM 445	Green Cities	4

Four-Year Degree Plan

The degree plan shown is only a sample of how students may complete their degrees in four years. There are alternative ways. Students should consult their advisor to determine the best path for them.

Bachelor of Arts in Environmental Science (Life Science Focus)

Course	Title	Credits	Milestones
First Year			
Fall			
	Core-education course in arts and letters	4	
CH 221Z	General Chemistry I	4	
	First term of 1st-year second-language sequence	4	
MATH 111Z	Precalculus I: Functions	4	
Credits		16	
Winter			
WR 121Z	Composition I	4	
CH 222Z	General Chemistry II	4	
	Second term of 1st-year second-language sequence	4	
MATH 112Z	Precalculus II: Trigonometry	4	
Credits		16	
Spring			
ENVS 203	Introduction to Environmental Studies: Humanities	4	
CH 223Z	General Chemistry III	4	
	Third term of 1st-year second-language sequence	4	
MATH 251Z	Differential Calculus	4	
Credits		16	
Second Year			
Fall			
	First term of 2nd-year second-language sequence	4	
MATH 252Z	Integral Calculus	4	
	or or Calculus for the Biological Sciences II		
MATH 247			
BI 221Z	Principles of Biology: Cells	5	
	Core-education course in social science	4	
Credits		17	
Winter			
	Second term of 2nd-year second-language sequence	4	
ENVS 201	Introduction to Environmental Studies: Social Sciences	4	
BI 222Z	Principles of Biology: Organisms	5	
MATH 425	Statistical Methods I	4	
Credits		17	
Spring			
	Third term of 2nd-year second-language sequence	4	
WR 122Z	Composition II	4	
	or WR 123 or College Composition III		
BI 223Z	Principles of Biology: Ecology and Evolution	5	
ERTH 305	Dinosaurs	4	
Credits		17	
Summer			
ERTH 201	Dynamic Planet Earth	4	
ERTH 202	Earth's Surface and Environment	4	
ERTH 203	History of Life	4	
Credits		12	

Third Year

Fall

PHIL 340	Environmental Philosophy	4
BI 370	General Ecology	4
Core-education course in arts and letters		4
Elective course		4

Credits 16

Winter

ANTH 362	Human Biological Variation	4
BI 357	Marine Biology	4
Elective courses		8

Credits 16

Spring

GEOG 341	Population and Environment	4
ENVS 335	Allocating Scarce Environmental Resources	4
Elective courses		8

Credits 16

Fourth Year

Fall

BI 380	Evolution	4
Elective courses		8
ENVS 477	Soil Science	4

Credits 16

Winter

ENVS 427	Environmental and Ecological Monitoring	4
BI 471	Population Ecology	4
Elective courses		8

Credits 16

Spring

ENVS 429	Environmental Leadership: [Topic]	4
BI 448	Field Botany	4
Elective courses		8

Credits 16

Total Credits 207

Bachelor of Science in Environmental Science (Life Science Focus)

Course	Title	Credits	Milestones
First Year			
Fall			
ENVS 201	Introduction to Environmental Studies: Social Sciences	4	
WR 121Z	Composition I	4	
Core-education group-satisfying course		4	
Core-education course that also satisfies a global perspective cultural literacy requirement		4	
Credits		16	
Winter			
WR 123	College Composition III	4	
MATH 111Z	Precalculus I: Functions	4	

Core-education courses 8

Credits 16

Spring

ENVS 203	Introduction to Environmental Studies: Humanities	4
MATH 112Z	Precalculus II: Trigonometry	4

Core-education courses 8

Credits 16

Second Year

Fall

CH 221Z	General Chemistry I	4
ERTH 201	Dynamic Planet Earth	4
MATH 251Z	Differential Calculus	4
Cultural literacy course in US: DIA		4

Credits 16

Winter

CH 222Z	General Chemistry II	4
ERTH 202	Earth's Surface and Environment	4
MATH 252Z	Integral Calculus	4
BI 221Z	Principles of Biology: Cells	5

Credits 17

Spring

Core-education course		4
ERTH 203	History of Life	4
CH 223Z	General Chemistry III	4
BI 223Z	Principles of Biology: Ecology and Evolution	5

Credits 17

Third Year

Fall

ANTH 330	Hunters and Gatherers	4
GEOG 341	Population and Environment	4
Core-education courses		8

Credits 16

Winter

ANTH 361	Human Evolution	4
ANTH 349	Origins of Art	4
BI 222Z	Principles of Biology: Organisms	5
ENVS 345	Environmental Ethics	4

Credits 17

Spring

ANTH 472	Primate Conservation Biology	4
ARCH 430	Architectural Contexts: Place and Culture	4
STAT 243Z	Elementary Statistics I	4

Credits 12

Fourth Year

Fall

ENVS 404	Internship: [Topic]	4
Elective courses		9

Credits 13

Winter

ENVS 411	Environmental Issues: [Topic]	4
BI 307	Forest Biology	4
Elective course		4
Credits		12

Spring

ENVS 429	Environmental Leadership: [Topic]	4
BI 370	General Ecology	4
Elective course		4
Credits		12
Total Credits		180