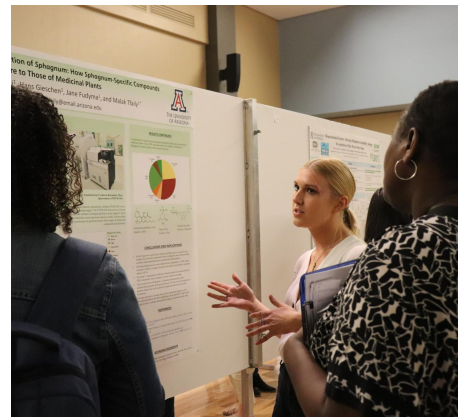




THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE & LIFE SCIENCES
Environmental Science

B.S. in Environmental Science

*We want to empower you with applied scientific and critical thinking skills,
so you can tackle big environmental challenges.*



Questions & More Information

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environmentalscience.cals.arizona.edu/undergraduate-student-resources



B.S. in Environmental Science

*You will gain a solid foundation in biology, chemistry and physics.
Then choose an option for more in-depth study.*

- I **General Education + Core**
Required courses for all students
- Options**
- 2-3 **Leadership, Sustainability & Communication**
Learn how to advocate for our environment
- 4-5 **Soil, Air & Water**
Expand your knowledge of our ecosystems
- 6-7 **Physical & Chemical Dynamics**
Develop engineered solutions to environmental problems
- 8-9 **The Biosphere**
Unearth the mysteries of ecology

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General Education	Course	Units
First Year Composition 1	ENGL 101	3
First Year Composition 2	ENGL 102	3
College Algebra Concepts & Applications	MATH 112	3
General Education, Tier 1	TRAD 1	3
General Education, Tier 1	TRAD 2	3
General Education, Tier 1	INDV 1	3
General Education, Tier 1	INDV 2	3
General Education, Tier 2	Humanities	3
General Education, Tier 2	Individuals & Societies	3
General Education, Tier 2	Arts	3
Foreign language	Various	0-8
Required Major Courses	Course	Units
General Chemistry 1	CHEM 141 & 143, 151 OR 161 & 163	4
General Chemistry 2	CHEM 142 & 144, 152 OR 162 & 164	4
Introductory Biology I & II	MCB 181R & ECOL 182R	6
Introductory Physics I	PHYS 102/181 OR 141	4
Introductory Microbiology	MIC 205A	3
Environmental Science Core	Course	Units
Introduction to Soil Science & Soil Laboratory	ENVS 200 & 201	4
Fundamentals of Environmental Science & Sustainability	ENVS 210	3
Critical Zone Science	ENVS 270	3
Data Analysis in the Life and Environmental Sciences	ENVS 275	3
Pollution Science	ENVS 305	3
Environmental Chemistry	ENVS 340	3
<i>OR</i> Environmental Soil & Water Chemistry	<i>OR</i> ENVS 462	
<i>OR</i> Environmental Organic Chemistry	<i>OR</i> ENVS 464	
Environmental Physics	ENVS 420	3
Environmental Microbiology	ENVS 425	3-4
<i>OR</i> Aquatic Plants & the Environment	<i>OR</i> ENVS 474	
<i>OR</i> Freshwater & Marine Algae	<i>OR</i> ECOL 475	
<i>OR</i> Principles of Ecotoxicology	<i>OR</i> ENVS 477	
Environmental Assessment for Contaminated Sites	ENVS 480	3
Career Preparation	Course	Units
Careers in Environmental Science	ENVS 195A	1
Individual Studies: Directed Research, Internship, Teaching workshop; Independent study, practicum or thesis	ENVS 392, 393, 397A, 399, 399H, 492, 493, 499, <i>OR</i> 499H	1-3
Scientific Writing for Environmental, Agriculture and Life Sciences	ENVS 408	3
<i>OR</i> Translating Environmental Science	<i>OR</i> ENVS 415	
Environmental Monitoring & Remediation	ENVS 430 R/L	4
<i>OR</i> Senior Capstone Research	<i>OR</i> ENVS 498A/B	



Leadership, Sustainability and Communication		
Group I: Required courses, take 6 units	Course	Units
Ecosystem Health and Justice	ENVS 310	3
<i>OR</i> Toxic! The Anthropology of Exposure	<i>OR</i> ANTH 373	
<i>OR</i> Reclamation and Redevelopment of Impacted Lands	<i>OR</i> ENVS 482	
<i>OR</i> Environment, Health, and Society	<i>OR</i> SOC 350	
Translating Environmental Science	ENVS 415	3
<i>OR</i> Scientific Writing for Environmental, Agricultural & Life Sciences	<i>OR</i> ENVS 408	
<i>OR</i> Communicating Knowledge in Agriculture and the Life Sciences	<i>OR</i> ALC 422	
<i>OR</i> Applied Organization Communication	<i>OR</i> COMM 312	
<i>OR</i> Advances in Health Communication	<i>OR</i> COMM 469	
<i>OR</i> Environmental Journalism	<i>OR</i> JOUR 455	
<i>OR</i> Issues in Covering Science and the Environment	<i>OR</i> JOUR 465	
<i>OR</i> Science Journalism	<i>OR</i> JOUR 472	
<i>OR</i> Science Communication	<i>OR</i> SCI 401	
Group II: Select a minimum of 11 units	Course	Units
Globalization, the Environment, and Indigenous Religions	ANTH 428A	3
<i>OR</i> Ecological Anthropology	<i>OR</i> ANTH 307	
<i>OR</i> Environmental Archaeology	<i>OR</i> ANTH 332	
Southwest Land & Society	ANTH 418	3
Toxic! The Anthropology of Exposure	ANTH 373	3
Intro to Human Risk Assessment	ENVS 418	3
Reclamation and Redevelopment of Impacted Lands	ENVS 482	3
Teaching Workshop	ENVS OR BE 397A	1 – 5
<i>OR</i> Teaching Geosciences	<i>OR</i> GEOS 397A	
<i>OR</i> Undergrad. Teaching Training in Ecology and Evolutionary Biology	<i>OR</i> ECOL 497A	
<i>OR</i> Environmental Learning	<i>OR</i> TLS 431	
Integrating Technology into the Curriculum	ETCV 310	3
<i>OR</i> Teaching with New Technologies	<i>OR</i> TLS 318	
U.S. Environmental History	HIST 355	3
Global Environmental History	HIST 356	3
Environmental Ethics	PHIL 323	3
Environmental Psychology	PSY 374	3
Environmental Sociology	SOC 307	3
Social Movements & Activism	SOC 313	3
Environment, Health, and Society	SOC 350	3

Leadership, Sustainability and Communication (continued)		
Group III: Select a minimum of 9 units	Course	Units
Political Ecology	ANTH 424A	3
Environmental Economics	AREC 373	3
Economics of Policy Analysis	AREC 464	3
Environmental Law & Economics	AREC 476	3
Economics of Water Management & Policy	AREC 479	3
Weather, Climate, & Society	ATMO 336	3
Physical Climatology: Mechanisms of Change	ATMO 421C	3
Conservation Biology	ECOL 406R	3
Conservation Biology: Field Studies in Developing Countries	ENVS 495F	3
Environmental Studies: Ideas/Institutions	EVS 260	3
Environment and Development	GEOG 362	3
Environmental & Resource Geography	GEOG 461	3
Introduction to Dendrochronology	GEOS 439A	4
Global Change	GEOS 478	3
Natural History of Disaster	HIST 358	3
Environmental Law and Policy	LAW 454	3
Public International Environmental Law	LAW 459	3
Elements of Calculus	MATH 113	3-4
<i>OR</i> First Semester Calculus	<i>OR</i> MATH 122B	
<i>OR</i> Calculus I	<i>OR</i> MATH 125	
Global Climate Change: Integrating Science, Policy, & Decision Making	PA 461	3
Formation of Public Policy	PA 480	3
Environmental Policy	PA 481	3
Environmental Land Use Planning	PLG 472	3
Psychology of Leadership	PSYV 471	3
Adaptation to Climate Change	RNR 440	3
Natural Resources Policy & Law	RNR 480	3
The Economics and Social Connections to Natural Resources	RNR/PA 485	3

Soil, Air, and Water		
Group I: Required courses, take all 6-7 units	Course	Units
Elements of Calculus	MATH 113	3-4
<i>OR</i> First Semester Calculus	<i>OR</i> MATH 122B	
<i>OR</i> Calculus I	<i>OR</i> MATH 125	
Soil Ecology	ENVS 300	3
<i>OR</i> Soil Fertility & Plant Nutrition	<i>OR</i> ENVS 316	
<i>OR</i> Sustainable Management of Arid Lands & Salt-Affected Soils	<i>OR</i> ENVS 401	
<i>OR</i> Soil Genesis, Morphology & Classification	<i>OR</i> ENVS 431	
<i>OR</i> Soil Physics	<i>OR</i> ENVS 470	
Group II: Select minimum of 12 units	Course	Units
Fundamentals of Atmospheric Sciences	ATMO 436A	3
Organic Chemistry I	CHEM 241A & 243A	4
Soil Ecology	ENVS 300	3
Soil Fertility & Plant Nutrition	ENVS 316	3
Sustainable Management of Arid Lands & Salt-Affected Soils	ENVS 401	3
Microbial Biogeochemistry and Global Change	ENVS 410	3
Soil Genesis, Morphology & Classification	ENVS 431	3
Limnology	ENVS 442	3
Green Infrastructure	ENVS 450	3
Water Harvesting	ENVS 454	3
Soil & Water Conservation	ENVS 461	3
Environmental Soil and Water Chemistry	ENVS 462	3
Soil Physics	ENVS 470	3
Principles of Ecotoxicology	ENVS 477	3
Reclamation and Redevelopment of Impacted Lands	ENVS 482	3
Principals of Stratigraphy & Sedimentation	GEOS 302	4
Ocean Sciences	GEOS 412A	4
Geomorphology	GEOS 450	4
Watershed Hydrology	HWRS 460A	3-4
<i>OR</i> Principles of Hydrology	<i>OR</i> HWRS 350 <i>OR</i> 349A/B	
Introductory Physics II	PHYS 103	3-4
<i>OR</i> Introductory Mechanics	<i>OR</i> PHYS 141	
<i>OR</i> Introductory Optics and Thermodynamics	<i>OR</i> PHYS 142	
Global Change	GEOS 478	3
Applications of Geographic Information Systems	RNR 403	3
<i>OR</i> Geographic Information Systems for Natural & Social Sci.	<i>OR</i> RNR 417	
Dryland Ecohydrology and Vegetation Dynamics	WSM/RNR 452	4



Soil, Air, and Water (continued)		
Group III: Select a minimum of 8 units	Course	Units
Air Pollution I: Gases	ATMO 469A	3
Air Pollution II: Aerosols	ATMO 469B	3
Synoptic Meteorology	ATMO 471	3
Atmospheric Electricity	ATMO 489	3
Conservation Biology in the Field	ECOL 406L	1
Conservation Biology	ECOL 406R	3
Freshwater & Marine Algae	ECOL 475	4
Environmentally Acquired Illnesses	EHS 420	3
Soil Ecology of Sustainable Systems	ENVS 300	3
Introduction to Remote Sensing	ENVS 330	3
Geographical Applications of Remote Sensing	ENVS 483	3
Microbial Biogeochemistry and Global Change	ENVS 410	3
Introduction to Human Health Risk Assessment	ENVS 418	3
Environmental Microbiology	ENVS 425	3
Environmental Microbiology Laboratory	ENVS 426	2
Limnology	ENVS 442	3
Water Harvesting	ENVS 454	3
Aquatic Plants & the Environment	ENVS 474	4
Principles of Ecotoxicology	ENVS 477	3
Water, Environment, & Society	GEOG 304	3
Field Study in Geography Workshop	GEOG 397A	1
Environmental & Resource Geography	GEOG 461	3
Physical Geology	GEOS 251	4
Glacial & Quaternary Geology	GEOS 453	3
Natural History of Disasters	HIST 358	3
Environmental Law and Policy	LAW 454	3
Public International Environmental Law	LAW 459	3
Calculus II	MATH 129	3
Rangeland Plant Communities of the West	RAM 382	3
Management & Restoration of Wildlands Vegetation	RAM 446	3
Rangeland Inventory & Monitoring	RAM 456A	3
Natural Resources Measurements	RNR 321	3
Conservation Planning & Wildland Recreation	RNR 448	3-4
Environmental Land Use Planning	RNR 472	3
Natural Resources Policy & Law	RNR 480	3
Natural Resources Economics & Planning	RNR 485A	3
Conservation Biology: Field Studies in Developing Countries (Namibia)	RNR 495F	6
Amazon Rainforest Conservation Biology in Ecuador	RNR 495G	3
Dryland Ecohydrology & Vegetation Dynamics	WSM/RNR 452	3
Watershed Management	WSM 462	3
Wildland Water Quality	WSM 468	3



Physical and Chemical Dynamics		
Group I: Required courses, take all (7-8 units)	Course	Units
First Semester Calculus	MATH 122B	3-4
<i>OR</i> Calculus I	<i>OR</i> MATH 125	
Organic Chemistry I	CHEM 241A & 243A	4
Group II: Select a minimum of 10 units	Course	Units
Biochemistry	BIOC 462A	4-5
Metabolic Biochemistry	BIOC 385	3
Environmental Chemistry	ENVS 340	3
Limnology	ENVS 442	3
Environmental Soil & Water Chemistry	ENVS 462	3
Environmental Organic Chemistry	ENVS 464	3
Soil Physics	ENVS 470	3
Organic Chemistry 2	CHEM 241B	3
Physical Chemistry	CHEM 480A	3
Physical Geology	GEOS 251	4
Watershed Hydrology	HWRS/WSM 460A	3-4
<i>OR</i> Principles of Hydrology	<i>OR</i> HWRS 350 <i>OR</i> 349A/B	
Hydrogeology	HWRS 431	4
Hydrology	HWRS 423	3
Calculus II	MATH 129	3
Introductory Physics II	PHYS 103	3-4
<i>OR</i> Introductory Mechanic	<i>OR</i> PHYS 141	
<i>OR</i> Introductory Optics and Thermodynamics	<i>OR</i> PHYS 142	
Microbial Biogeochemistry and Global Change	ENVS 410	3
Principles of Ecotoxicology	ENVS 477	3



Physical and Chemical Dynamics (continued)		
Group III: Select a minimum of 6 units	Course	Units
Environmental Chemistry	ENVS 340	3
Sustainable Management of Arid Lands & Salt-Affected Soils	ENVS 401	3
Microbial Biogeochemistry and Global Change	ENVS 410	3
Environmental Microbiology	ENVS 425	3
Soil Genesis, Morphology & Classification	ENVS 431	3
Biodegradation of Pollutants	ENVS 440	3
Green Infrastructure	ENVS 450	3
Environmental Soil and Water Chemistry	ENVS 462	3
Environmental Organic Chemistry	ENVS 464	3
Reclamation and Redevelopment of Impacted Lands	ENVS 482	3
Air Pollution I: Gases	ATMO 469A	3
Air Pollution II: Aerosols	ATMO 469B	3
Environmental & Water Engineering	CHEE 370R	3
Environmental & Water Engineering Laboratory	CHEE 370L	1
Water Chemistry for Engineers	CHEE 400R	3
Water Chemistry for Engineers Laboratory	CHEE 400L	1
Introduction to Hazardous Waste Management	CHEE 478	3
Inorganic Chemistry	CHEM 404A	3
Introduction to Geochemistry	GEOS 400	3
Chemistry of the Solar System	PTYS 407	3



The Biosphere		
Group I: Required courses, take all (10-12 units)	Course	Units
Elements of Calculus	MATH 113	3-4
<i>OR</i> First Semester Calculus	<i>OR</i> MATH 122B	
<i>OR</i> Calculus I	<i>OR</i> MATH 125	
Organic Chemistry I	CHEM 241A & 243A <i>OR</i> 246A & 247A	4
Natural Resources Ecology	RNR 316	3-4
<i>OR</i> Ecology	<i>OR</i> ECOL 302	
Group II: Select a minimum of 10 units	Course	Units
Environmental Microbiology	ENVS 425	3
Environmental Microbiology Laboratory	ENVS 426	2
Aquatic Plants & the Environment	ENVS 474	4
Biochemistry	BIOC 462A	4-5
Metabolic Biochemistry	BIOC 385	3
Foundations in Biochemistry	BIOC 384	3
Lectures in Organic Chemistry	CHEM 246B	3
Organic Chemistry Laboratory	CHEM 247B	1
Organic Chemistry 2	CHEM 241B	3
Ecology	ECOL 302	4
Genetics	ECOL 320	4
Evolutionary Biology	ECOL 335	4
Microbial Biogeochemistry and Global Change	ENVS 410	3
Green Infrastructure	ENVS 450	3
Freshwater & Marine Algae	ENVS 475	4
Principles of Ecotoxicology	ENVS 477	3



The Biosphere (continued)		
Group III: Select a minimum of 6 units	Course	Units
Living in Symbiosis	ECOL 310	3
Conservation Biology in the Field	ECOL 406L	1
Conservation Biology	ECOL 406R	3
Soil Fertility & Plant Nutrition	ENVS 316	3
Soil Genesis, Morphology & Classification	ENVS 431	3
Biodegradation of Pollutants in Soil & Groundwater	ENVS 440	3
Limnology	ENVS 442	3
Watersheds & Ecosystem Function	ENVS 456A	3
Reclamation and Redevelopment of Impacted Lands	ENVS 482	3
Physical Geology	GEOS 251	4
Ocean Sciences	GEOS 412A	4
Global Change	GEOS 478	3
Watershed Hydrology	HWRS 460A	3-4
<i>OR</i> Principles of Hydrology	<i>OR</i> HWRS 249A/B <i>OR</i> 250	
Molecular Biology	MCB 411	3-4
Recombinant DNA Methods & Applications	MCB 473	4
Microbial Physiology	MIC 328R	3
Microbiological Techniques	MIC 421B	3
Natural Resources Ecology	RNR 316	3
Natural Resource Management Practices	RNR 384	3
Applications of Geographic Information Systems	RNR 403	3
Dryland Ecohydrology and Vegetation Dynamics	RNR 452	4
Conservation Biology: Field Studies in Developing Countries (Namibia)	RNR 495F	6
<i>OR</i> Amazon Rainforest Cons. Biology in Ecuador	<i>OR</i> RNR 495G	3