



Environmental Science Major

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

Gain a solid foundation in biology chemistry and physics then choose a sub-plan on the following pages for more in-depth study.

▶ The Biosphere

Unearth the mysteries of ecology.

▶ Soil, Air and Water

Expand your knowledge of our ecosystems.

▶ Leadership, Sustainability and Communication

Learn how to advocate for our environment.

▶ Physical and Chemical Dynamics

Develop engineered solutions to environmental problems.

Visit our website for more information:
environmentalscience.cals.arizona.edu/environmental-science-major

Questions about our major?
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520-621-1606

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
Pre-major	Course	Units
General Chemistry 1	CHEM 151, 141 & 143, OR 161 & 163	4
General Chemistry 2	CHEM 152, 142 & 144, OR 162 & 164	4
Introductory Biology I & II	ECOL 182R & MCB 181R	6
Introductory Physics I	PHYS 102/181 OR 141	4
Introductory Microbiology	MIC 205A	3
Environmental Science Core	Course	Units
Introduction to Soil Science & Laboratory	ENVS 200 & 201	4
Fundamentals of Environ Science & Sustainability	ENVS 210	3
Critical Zone Science	ENVS 270	3
Data Analysis in the Life and Environ. Sciences	ENVS 275	3
Pollution Science	ENVS 305	3
Environmental Chemistry	ENVS 340	3
OR Environmental Organic Chemistry	OR ENVS 464	
OR Environmental Soil & Water Chemistry	OR ENVS 462	
Environmental Physics	ENVS 420	3
Environmental Microbiology	ENVS 425	3-4
OR Aquatic Plants & the Environment	OR ENVS 474	
OR Freshwater & Marine Algae	OR ENVS 475	
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, OR 499H	1-3
Scientific Writing	ENVS 408	3
OR Translating Environmental Science	OR ENVS 415	
Environ Monitoring & Remediation	ENVS 430 R/L	4
OR Senior Capstone Research	OR ENVS 498A/B	
Sub-plan requirements and electives		26

Choose 1 Sub-Plan

Sub-plan: The Biosphere		
Group I: Required courses, take all (10 to 12 units)	Course	Units
Elements of Calculus	MATH 113	3-4
OR First Semester Calculus	MATH 122B	
OR Calculus I	MATH 125	
Organic Chemistry 1	CHEM 241A & 243A OR 246A & 247A	4
Natural Resources Ecology	RNR 316	3-4
OR Ecology	OR ECOL 302	
Group II: Select a minimum of 10 units		
Course	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
Freshwater & Marine Algae	ENVS 475	4
Ecotoxicology	ENVS 477	3
Group III: Select a minimum of 6 units		
Course	Course	Units
Living in Symbiosis	ECOL 310	3
Conservation Biology in the Field	ECOL 406 L	1
Conservation Biology	ECOL 406 R	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
OR Principles of Hydrology	OR HWRS 249A/B OR 250	
Introduction to Statistics and Biostatistics	MATH 263	3
OR Intro to Stat Methods	OR MAT 363	
OR Theory of Statistics	OR MAT 466	
OR Introduction to Biostatistics	OR BIOS 376	
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
Cons. Biology: Field Studies in Developing Countries	RNR 495F	3 - 6
OR Amazon Rainforest Cons. Biology in Ecuador	RNR 495G	

Sub-plan: Soil, Air, and Water		
Group I: Required courses, take all (9-10 units)	Course	Units
Elements of Calculus	MATH 113	3-4
OR First Semester Calculus	MATH 122B	
OR Calculus I	MATH 125	
Soil Ecology of Sustainable Plant Systems	ENVS 300	3
OR Soil Fertility & Plant Nutrition	OR ENVS 316	
OR Sustainable Mgt of Arid Lands & Salt-Affected Soils	OR ENVS 401	
OR Soil Genesis, Morphology & Classification	OR ENVS 431	
OR Soil Physics	OR ENVS 470	3
Introduction to Statistics and Biostatistics	MATH 263	
OR Intro to Stat Methods	OR MAT 363	
OR Theory of Statistics	OR MAT 466	
OR Introduction to Biostatistics	OR BIOS 376	
Group II: Select a minimum of 9 units	Course	Units
Fundamentals of Atmospheric Sciences	ATMO 436A	3
Organic Chemistry 1	CHEM 241A & 243A	4
Soil Ecology of Sustainable Systems	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	
Soil Physics	ENVS 470	3
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
OR Principles of Hydrology	OR HWRS 350 OR 349A/B	
Introductory Physics II	PHYS 103	3-4
OR Introductory Mechanics	OR PHYS 141	
OR Introductory Optics and Thermodynamics	OR PHYS 142	
Global Change	GEOS 478	3
Applications of Geographic Information Systems	RNR 403	3
OR Geographic Information Systems for Natural & Social Sci.	OR RNR 417	
Dryland Ecohydrology and Vegetation Dynamics	RNR 452	4

Sub-plan: 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 406 L	1
Conservation Biology	ECOL 406 R	3
Fresh Water & Marine Algae	ECOL 475	4
Introduction to Remote Sensing	ENVS 330	3
Introduction to Human Health Risk Assessment	ENVS 418	3
Environmental Microbiology	ENVS 425	3
Environmental Microbiology Laboratory	ENVS 426	2
Aquatic Plants & the Environment	ENVS 474	4
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
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	2-3
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	RNR 495F	3 - 6
Dryland Ecohydrology & Vegetation Dynamics	WSM 452	3
Watershed Management	WSM 462	3

Sub-plan: Leadership, Sustainability and Communication		
Group I: Required courses, take 6 units	Course	Units
Ecosystem Health and Justice	ENVS 310	3
OR Toxic! The Anthropology of Exposure	OR ANTH 373	
OR Reclamation and Redevelopment of Impacted Lands	OR ENVS 482	
OR Environment, Health, and Society	OR SOC 350	
Translating Environmental Science	ENVS 415	3
OR Scientific Writing for Environmental, Agricultural & Life Sciences	OR ENVS 408	
OR Communication and Public Relations	OR COMM 313	
OR Advances in Health Communication	OR COMM 469	
OR Environmental Journalism	OR JOUR 455	
OR Issues in Covering Science and the Environment	OR JOUR 465	
OR Science Journalism	OR JOUR 472	
OR Science Communication	OR SCI 401	
Group II: Select a minimum of 11 units	Course	Units
Globalization, the Environment, and Indigenous Religions	ANTH 428A	3
OR Ecological Anthropology	OR ANTH 307	
OR Environmental Archaeology	OR ANTH 332	
Southwest Land & Society	ANTH 418	3
Toxic! The Anthropology of Exposure	ANTH 373	3
Inro to Human Risk Assessment	ENVS 418	3
Reclamation and Redevelopment of Impacted Lands	ENVS 482	3
Teaching Workshop	ENVS OR BE 397A	1-5
OR Teaching Geosciences	OR GEOS 397A	
OR Undergrad. Teaching Training in Ecology and Evolutionary Biology	OR ECOL 497A	
OR Environmental Learning	OR TLS 431	
Integrating Technology into the Curriculum	ETCV 310	3
OR Teaching with New Technologies	OR 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

Sub-plan: 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 406 R	3
Conservation Biology: Field Studies in Developing Countries	ENV5 495F	3
Environment and Development	GEOG 362	3
Environmental & Resource Geography	GEOG 461	3
Introduction to Dendrochronology	GEOS 439A	4
Introduction to Quaternary Ecology	GEOS 462	3
Global Change	GEOS 478	3
Elements of Calculus	MATH 113	3-4
OR First Semester Calculus	OR MATH 122B	
OR Calculus I	OR MATH 125	
Introduction to Statistics and Biostatistics	MATH 263	3
OR Intro to Stat Methods	OR MAT 363	
OR Theory of Statistics	OR MAT 466	
OR Introduction to Biostatistics	OR BIOS 376	
Global Climate Change: Integrating Sci, 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
Adaptation to Climate Change	RNR 440	3
Natural Resources Policy & Law	RNR 480	3

Sub-plan: Physical and Chemical Dynamics	Course	Units
Group I: Required courses, take all (10-11 units)		
First Semester Calculus	MATH 122B	3-4
OR Calculus I	OR MATH 125	
Organic Chemistry 1	CHEM 241A & 243A	4
Introduction to Statistics and Biostatistics	MATH 263	3
OR Intro to Stat Methods	OR MAT 363	
OR Theory of Statistics	OR MAT 466	
OR Introduction to Biostatistics	OR BIOS 376	
Group II: Select a minimum of 10 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 460A	3-4
OR Principles of Hydrology	OR HWRS 350 OR 349A/B	
Hydrogeology	HWRS 431	4
Hydrology	HWRS 423	3
Calculus II	MATH 129	3
Introductory Physics II	PHYS 103	3-4
OR Introductory Mechanic	OR PHYS 141	
OR Introductory Optics and Thermodynamics	OR PHYS 142	
Watershed Hydrology	WSM 460A	3
Group III: Select a minimum of 6 units		
Environmental Chemistry	ENVS 340	3
Sustainable Management of Arid Lands & Salt-	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
Ecotoxicology	ENVS 477	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
Chemical Safety	CHEM 404A	3
Introduction to Geochemistry	GEOS 400	3
Chemistry of the Solar System	PTYS 407	3

Environmental Science/Soil & Water Science Minor

Students may select a Minor in Environmental Science or Soil and Water Science while majoring in a complementary alternate field of study. This minor requires twenty units, regardless of department guidelines for minors. A minimum of nine units must be unique to this minor.

Environmental Science Minor	Course	Units
General Sciences Courses (Select 14 units)		
Careers in Environmental Science	ENVS 195A	1
Introduction to Soil Science	ENVS 200	3
Soils Laboratory	ENVS 201	1
Fundamentals of Environmental Science & Sustainability	ENVS 210	3
Introductory Biology	MCB 181R	3
Water Harvesting	ENVS 454	3
OR Green Infrastructure	OR ENVS 450	
OR Water, Environment, and Society	OR GEOG 304	
OR Water and Sustainability	OR GEOG 468	
Upper Division Courses (Select 6 units from the following)		
	ENVS, AREC, ATMOS, HIST, HWRS, POL, RNR	6
	TOTAL:	20
Soil & Water Science Minor		
General Sciences Courses (7 units)		
Introduction to Soil Science	ENVS 200	3
Soils Laboratory	ENVS 201	1
Critical Zone Science	ENVS 270	3
Select 1 of the following courses (3-4 units)		
Physical Geology	GEOG 251	4
Water Harvesting	ENVS 454	3
Water, Environment, and Society	GEOG 304	3
Water and Sustainability	GEOG 468	3
Principles of Hydrology	HWRS 350	3
Watershed Hydrology	HWRS 460A	3
Upper Division Courses (Select 9 units)		
Soil Ecology of Sustainable Systems	ENVS 300	3
Pollution Science	ENVS 305	3
Soil Fertility & Plant Nutrition	ENVS 316	3
Sustainable Management of Arid Lands & Salt-Affected Soils	ENVS 401	3
Environmental Physics	ENVS 420	3
Soil Genesis, Morphology & Classification	ENVS 431	3
Green Infrastructure	ENVS 450	3
Water Harvesting	ENVS 454	3
Environmental Soil and Water Chemistry	ENVS 462	3
Soil Physics	ENVS 470	3
Reclamation and Redevelopment of Impacted Lands	ENVS 482	3
	TOTAL:	20

