ENVIRONMENTAL SCIENCE, B.A.

The environmental science program at Saint Louis University focuses on developing a scientific understanding of Earth's natural systems and their interconnections with human society. The program represents a collaborative effort between several departments to provide a degree opportunity that bridges traditional academic boundaries. It is hosted by the Department of Earth and Atmospheric Sciences, which provides student advising and mentoring.

Environmental science encompasses the study of Earth's environment, which is comprised of the geosphere, hydrosphere, atmosphere and biosphere, with emphasis on human interactions with these spheres. Students will learn how these spheres interact with each other in the natural world, how human activities influence the environment and how people are affected by the ever-changing environment. The environmental science program is designed so students first gain a thorough foundation of knowledge in all spheres and then focus more on one or more sub-disciplines, for example: soil, water, energy or climate change. The breadth-plus-depth structure of the program prepares students for advanced study toward M.S. or Ph.D. degrees in scientific disciplines, professional schools such as law or public health, or for immediate employment in industry or government.

The B.A. degree is appropriate for students interested in pursuing an advanced professional degree, or interested in the public policy associated with environmental science.

Curriculum Overview

The environmental science curriculum is built upon a breadth-plus-depth model that combines a comprehensive background in the natural sciences with specialized training in a chosen area of interest. All students entering the environmental science program are required to complete a core set of preparatory and skill development courses that provide a rigorous introduction to the environmental sciences.

Students then choose a specialized concentration that provides more advanced instruction in a specific discipline germane to environmental science. The concentration requirements are individually defined by the collaborative departments and are roughly equivalent to completing a minor in the specific area of interest. All students must also complete an internship or a capstone project.

Although students in the program will take many of their upper-division classes in other departments, all students within the program have full access to departmental resources, including excellent computer and research laboratories, field- and laboratory-based research opportunities with department faculty, departmental field trips, and a strengthening relationship with internship opportunities in the St. Louis area. Opportunities for research and field experiences in biology and chemistry are also available to qualified students.

Fieldwork and Research Opportunities

Weekend field trips, canoe trips and social events are scheduled throughout the year. One perk associated with this major is the opportunity to join other faculty and students on annual, weeklong field trips across the country. Visit environmentally important sites and get to know the faculty, other students and alumni who join the trips.

Undergraduate students in the environmental science program have the option to pursue internship opportunities through the host department or in collaboration with other departments on campus. Students also have the option to participate in a capstone project designed to provide a real-world perspective as part of their undergraduate training. In addition, students may choose to participate in faculty research projects, many of which include funding specifically to support the participation of undergraduate students.

Careers

Demand for graduates with a comprehensive knowledge of natural systems and their interactions is strong and projected to increase in the face of greater public awareness of the influence of humans on the natural environment. With judicious planning, the program serves as excellent preparation for graduate degrees in medicine, the sciences, law and other disciplines where a strong background in environmental science is desirable.

Admission Requirements

Freshman

Begin your application for this program at www.slu.edu/apply. Saint Louis University also accepts the Common App.

All applications are thoroughly reviewed with the highest degree of individual care and consideration to all credentials that are submitted. Solid academic performance in college preparatory course work is a primary concern in reviewing a freshman applicant's file. College admission test scores (ACT or SAT) are used as an additional indicator of the student's ability to meet the academic rigors of Saint Louis University and are used as qualifiers for certain University scholarship programs. To be considered for admission to any Saint Louis University undergraduate program, the applicant must be graduating from an accredited high school or have an acceptable score on the General Education Development (GED) test.

Begin Your Application (http://www.slu.edu/apply.php)

Transfer

Begin your application for this program at www.slu.edu/apply.

Applicants must be a graduate of an accredited high school or have an acceptable score on the GED. An official high school transcript and official test scores are required only of those students who have attempted fewer than 24 transferable semester credits (or 30 quarter credits) of college credit. Those having completed 24 or more of college credit need only submit a transcript from previously attended college(s). In reviewing a transfer applicant's file, the office of admission holistically examines the student's academic performance in college-level coursework as an indicator of the student's ability to meet the academic rigors of Saint Louis University.

International Applicants

Begin your application for this program at www.slu.edu/apply.

All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency (http://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency)
- Proof of financial support must include:

- A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University
- A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of study at the University

- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the courses taken and/or lectures attended, practical laboratory work, the maximum and minimum grades attainable, the grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted.

Scholarships and Financial Aid

There are two principal ways to help finance a Saint Louis University education:

- Scholarships: awarded based on academic achievement, service, leadership and financial need.
- Financial Aid: provided in the form of grants and loans, some of which require repayment.

For priority consideration for merit-based scholarships, applicants should apply for admission by Dec. 1 and complete a Free Application for Federal Student Aid (FAFSA) by March 1.

For information on other scholarships and financial aid, visit the student financial services office online at https://finaid.slu.edu.

Learning Outcomes

1. Graduates will know the founding principles in their field of study, as well as the facts and content appropriate to the field.
2. Graduates will be able to use their knowledge to reason about issues in their discipline.
3. Graduates will be able to solve quantitative problems in their discipline.

Requirements

Environmental Science students must complete a minimum total of **68 credit hours** for the major.

Code	Title	Credits
Core Requirement		
College core requirements (p. 3)		57-66
For additional information about core courses (http://catalog.slu.edu/colleges-schools/arts-sciences/#policiestext)		
Required Courses		
BIOL 1240 & BIOL 1245	Principles of Biology I and Principles of Biology I Laboratory	4
BIOL 4480	Conservation Biology	3
CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory	4
CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	4
CMM 1200	Public Speaking	3
EAS 1010 & EAS 1020	Earth Systems I-The Solid Earth and Earth's Environment I Lab	4
EAS 1030 & EAS 1040	Earth's Dynamic Environment II and Earth's Environment II Lab	4
EAS 2600	Environmental Science Seminar Series [1]	1
EAS 3100	Environmental Issues	3
ENGL 1900	Advanced Strategies Of Rhetoric and Research	3
GIS 4010	Introduction to GIS	3
MATH 1300	Elementary Statistics with Computers	3
PHYS 1310 & PHYS 1320	Physics I and Physics I Laboratory	4
or PHYS 1610 & PHYS 1620	Engineering Physics I and Engineering Physics I Laboratory	
PLS 3500	Introduction to Environmental Law	3
Philosophy Elective		
Select one of the following:		3
PHIL 3420	Environmental and Ecological Ethics	
PHIL 3600	Science and Religion	
PHIL 3650	Topics in Science, Technology & Society	
PHIL 4090	Topics in Advanced Logic	
PHIL 4150	Philosophy of Science Survey	
PHIL 4170	Topics: Philosophy of Science	
PHIL 4310	Topics in Ethics	
Senior Experience		
EAS 4910	Internship	3
Environmental Science Concentration		
Choose one or more concentrations. Students may pursue two concentrations, but must take one course listed explicitly in a third concentration (excluding MATH 1510).		14-22
Atmosphere Concentration (p. 2)		
Biology Concentration (p. 2)		
Chemistry Concentration (p. 3)		
Geoscience Concentration (p. 3)		
Total Credits		123-140

[1] Students enroll for this 1-credit seminar three times, preferably during consecutive semesters during their sophomore and junior years.

Atmosphere Concentration

Code	Title	Credits
Required Courses		
MATH 1510	Calculus I	4
EAS 1420	Foundations of Atmospheric Science	3
EAS 2440	Atmospheric Processes and Systems	3
EAS 2530	Fundamentals of Climate Systems	3
EAS 3250	Global Change	3
EAS 4030	Elements of Air Pollution	3
Course listed explicitly in another concentration *		3
Total Credits		22

* Students interested in water resource issues should consider taking a course in surface water hydrology or groundwater. Students interested in air pollution issues should take EAS 2110 Meteorological Analysis (3 cr) concurrently with EAS 2440 Atmospheric Processes and Systems (3 cr)

Biology Concentration

Code	Title	Credits
Required Courses		
BIOL 3010	Evolutionary Biology	3

BIOL 4750	General Ecology	4
Course listed explicitly in another concentration		3
Biology Elective		
Select one of the following:		4
BIOL 3220	Biology of Invertebrates	
BIOL 3260	Biology of Plants & Fungi	
BIOL 4100	Natural History of Vertebrates	
BIOL 4240	General and Medical Entomology	
BIOL 4260	Biology of Amphibians and Reptiles	
BIOL 4280	Biology of Fishes	
BIOL 4310	Biology of Birds	
BIOL 4380	Biology of Mammals	
Total Credits		14

Chemistry Concentration

Code	Title	Credits
Required Courses		
CHEM 2200 & CHEM 2205	Analytical Chemistry 1 and Analytical Chemistry 1 Laboratory	4
CHEM 2410 & CHEM 2415	Organic Chemistry 1 and Organic Chemistry 1 Laboratory	4
CHEM 4700	Environmental Chemistry	3
Course listed explicitly in another concentration		3
Total Credits		14

Geoscience Concentration

Code	Title	Credits
Required Courses		
EAS 2400	Field Techniques in the Geosciences	2
Course listed explicitly in another concentration		3
Geoscience Elective		
Select nine credits of the following:		9
EAS 2200 & EAS 2210	Mineralogy and Mineralogy Lab	
EAS 3400	Soils- Formation, Properties, Identification, and Current Issues	
EAS 4100	Surface Processes	
EAS 4250	Project in Environmental Science	
EAS 4260	Environmental Geophysics	
EAS 4280	Environmental Geochemistry	
Total Credits		14

Non-Course Requirements

Competency exam in computer use will be administered once each year and should preferably be completed during a student's freshman or sophomore year.

Continuation Standards

Students must have a minimum of a 2.0 GPA in their earth and atmospheric science major courses and required related credits (biology, chemistry, mathematics and computer sciences, physics, etc.) by the conclusion of their freshman year. Students that fall below a 2.0 GPA will be placed on probation. If a student fails to obtain at least a 2.0 GPA in their major courses and required related credits by the conclusion of their sophomore year they will not be allowed to continue in the program.

Bachelor of Arts Core Curriculum Requirements

Code	Title	Credits
Core Components and Credits		
Foundations of Discourse (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/foundations-discourse)		3
Diversity in the U.S. (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/cultural-diversity)		3
Global Citizenship (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/global-citizenship)		3
Foreign Language (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/foreign-language)		0-9
Fine Arts (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/fine-arts)		3
Literature (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/literature)		6
Mathematics (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/mathematics)		3
Natural Science (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/sciences)		6
Philosophy (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/philosophy)		9
Social Science (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/social-science)		6
Theology (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/theology)		9
World History (http://catalog.slu.edu/colleges-schools/arts-sciences/ba-core/world-history)		6
Total Credits		57-66

Graduation Requirements

- Complete a minimum of 120 credits (excluding pre-college level courses [numbered below 1000]).
- Complete either the College of Arts and Sciences Bachelor of Arts or Bachelor of Science Core Curriculum Requirements
- Complete Major Requirements: minimum 30 credits required.
- Complete remaining credits with a second major, minor, certificate, and/or elective credits to reach the minimum of 120 credits required for graduation.
- Courses listed under the intensive English program do not count toward graduation requirements. EAP 1500 College Composition for International Students (3 cr), EAP 1900 Rhetoric & Research Strategies (3 cr) and EAP 2850 Nation, Identity and Literature (3 cr) count toward graduation requirements as equivalents to Department of English courses. In addition to those courses, six credits from EAP/MLNG courses at the 1000 level or higher may count toward graduation requirements
- Achieve at least a 2.00 cumulative grade point average, a 2.00 grade point average in the major(s) and a 2.00 grade point average in the minor/certificate, or related elective credits.
- Complete Dept/Program specific academic and performance requirements.
- Complete at least 50% of the coursework for the major and 75% for the minor/certificate through Saint Louis University or an approved study abroad program.

- Complete 30 of the final 36 credits through Saint Louis University or an approved study abroad program.
- Complete an online degree application by the required University deadline.

Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

Course	Title	Credits
Year One		
Fall		
EAS 1010 & EAS 1020	Earth Systems I-The Solid Earth and Earth's Environment I Lab	4
A&S Core		3
BIOL 1240 & BIOL 1245	Principles of Biology I and Principles of Biology I Laboratory	4
A&S Core		3
UNIV 1010	Enhancing First-Year Success	1
	Credits	15
Spring		
EAS 1030 & EAS 1040	Earth's Dynamic Environment II and Earth's Environment II Lab	4
MATH 1300	Elementary Statistics with Computers	3
A&S Core		3
A&S Core		3
A&S Core		3
	Credits	16
Year Two		
Fall		
EAS 2600	Environmental Science Seminar Series	1
CHEM 1110 & CHEM 1115	General Chemistry 1 and General Chemistry 1 Laboratory	4
CMM 1200 or EAS 2450	Public Speaking or Communicating in Science	3
Course in chosen Concentration (p. 4)		3-4
A&S Core		3
	Credits	14-15
Spring		
CHEM 1120 & CHEM 1125	General Chemistry 2 and General Chemistry 2 Laboratory	4
Course in chosen Concentration (p. 4)		3-4
A&S Core		3
A&S Core		3
	Credits	13-14
Year Three		
Fall		
BIOL 4480	Conservation Biology	3
PHYS 1310 & PHYS 1320	Physics I and Physics I Laboratory	4
PLS 3500	Introduction to Environmental Law (Or other approved course)	3
EAS 2600	Environmental Science Seminar Series	1
PHIL 3xxx/4xxx	Related to environment, logic, or science	3
A&S Core		3
	Credits	17
Spring		
EAS 3100	Environmental Issues	3
ENGL 1900	Advanced Strategies Of Rhetoric and Research	3
Course in chosen Concentration (p. 4)		3-4
A&S Core		3
A&S Core		3
	Credits	15-16
Summer		
EAS 4910	Internship	1-3
	Credits	1-3
Year Four		
Fall		
GIS 4010	Introduction to GIS	3
EAS 2600	Environmental Science Seminar Series	1
Course in chosen Concentration (p. 4)		3-4
Course in chosen Concentration (p. 4)		3-4
A&S Core		3
A&S Core		3
	Credits	16-18
Spring		
Course in chosen Concentration (p. 4)		3-4
Course in chosen Concentration (p. 4)		3-4
A&S Core		3
A&S Core		3
A&S Core		3
	Credits	15-17
	Total Credits	122-131

Program Notes

The atmosphere concentration requires 22 credits in the concentration; the biology, chemistry and geoscience concentrations require 14 credits in the concentration.