

ENVIRONMENTAL SCIENCE, BACHELOR OF SCIENCE

Environmental Science Major Requirements (B.S)

(Also see Requirements for a Bachelor's Degree. (<http://e-catalog.jhu.edu/arts-sciences/full-time-residential-programs/undergraduate-policies/academic-policies/requirements-for-a-bachelors-degree/>))

The Bachelor of Science in Environmental Science is an interdisciplinary major that introduces students to the ways in which human activities impact Earth systems and vice versa. It equips students to use a variety of tools, such as science, policy, communication, and individual and societal behavior change, to solve environmental and sustainability problems, with an emphasis on the perspectives and tools of the natural sciences. Environmental Science majors must complete a set of core courses common to both ENVS majors, including a research-focused senior capstone course and an applied experience involving an internship, plus several additional natural science core courses and a suite of electives in the student's area of interest.

The ENVS senior capstone experience involves both the completion of a research project or comparable scholarly endeavor under the supervision of a JHU faculty member and participation in a 1-credit senior seminar that explores career development and current events to support seniors as they transition to post-graduate life and work. A 1-credit research design course taken in the junior year guides students in the development of their senior research project proposal. All ENVS majors must enroll in the capstone and senior seminar courses in the fall semester of their senior year.

The applied experience can be completed during any semester including summers and involves at least 80 hours of supervised, hands-on experience working with an organization on environmental or sustainability issues through an internship or similar work or volunteer experience. Synthesizing assignments reflecting on the experience are also required. The goal of the applied experience requirement is to ensure that students have practical experience in a workplace or community setting that will help prepare them for the next step in their education and career.

The Environmental Science major requires a total of 75 or more credits to complete. All courses must be taken for a letter grade, and students must earn a grade of C- or better to apply the course to the major. All ENVS majors are encouraged to consider studying abroad at some point during their undergraduate years to develop a more global, culturally sensitive perspective on environmental and sustainability issues. Students are not permitted to double-major in both Environmental Science and Environmental Studies. Consult the ENVS program's website for additional information: <http://krieger.jhu.edu/envs/requirements/major/>

Requirements

Code	Title	Credits
Common ENVS Core		
AS.270.103	Introduction to Global Environmental Change	3
AS.271.107	Introduction to Sustainability	3
AS.270.202	Introduction to Ecology	3

AS.270.205	Introduction to Geographic Information Systems and Geospatial Analysis	3
AS.270.336	Freshwater Systems	3
AS.271.399	Research Design	1
AS.271.401	Environmental Ethics	3
AS.271.403	Environmental Policymaking and Policy Analysis	3
AS.271.496	Senior Capstone Experience	3
AS.271.499	Senior Seminar	1
AS.271.509	Applied Experience	1
AS.030.101	Introductory Chemistry I	3
AS.110.106	Calculus I (Biology and Social Sciences)	4
or AS.110.108	Calculus I (Physical Sciences & Engineering)	
AS.180.102	Elements of Microeconomics	3
AS.190.102	Introduction To Comparative Politics	3
or AS.190.111	Introduction to Global Studies	
or AS.190.108	Contemporary International Politics	
or AS.190.226	Global Governance	
AS.230.205	Introduction to Social Statistics	4
or AS.280.345	Public Health Biostatistics	
or EN.553.111	Statistical Analysis I	
or EN.553.211	Probability and Statistics for the Life Sciences	
or EN.553.310	Probability & Statistics for the Physical Sciences & Engineering	
or EN.553.311	Probability and Statistics for the Biological Sciences and Engineering	

Natural Sciences Core

AS.110.107	Calculus II (For Biological and Social Science)	4
or AS.110.109	Calculus II (For Physical Sciences and Engineering)	
AS.030.102	Introductory Chemistry II	3
or AS.030.103	Applied Chemical Equilibrium and Reactivity w/Lab	
Select two of the following science courses:		6-8
AS.020.151	General Biology I	
AS.020.152	General Biology II	
AS.171.101	General Physics: Physical Science Major I	
or AS.171.101	General Physics I for Biological Science Majors	
or AS.171.101	Classical Mechanics I	
or AS.171.101	General Physics for Physical Sciences Majors (AL)	
AS.171.102	General Physics: Physical Science Major II	
or AS.171.102	General Physics/Biology Majors II	
or AS.171.102	Electricity and Magnetism I	
or AS.171.102	General Physics for Physical Science Majors (AL)	

Lab Experiences

3 approved science lab courses are required. Lab courses waived due to Advanced Placement Exam credit cannot count toward this requirement. Approved labs include but are not limited to:

AS.020.153	General Biology Laboratory I	
AS.020.154	General Biology Lab II	
AS.030.105	Introductory Chemistry Laboratory I	
AS.030.106	Introductory Chemistry Laboratory II	
AS.173.111	General Physics Laboratory I	
AS.173.112	General Physics Laboratory II	
AS.173.115	Classical Mechanics Laboratory	
AS.173.116	Electricity and Magnetism Laboratory	

AS.270.221	The Dynamic Earth Laboratory
AS.270.337	Freshwater Systems Lab
AS.270.338	Field Methods in Ecology (If used to satisfy the lab requirement, this course cannot count as an elective.)

Electives

Choose 15 credits of approved courses related to the student's area of interest, at least 12 credits of which are at the 300-level or above. 15

Total Credits 75-80

Electives

Each student should work with their advisor to choose a coherent suite of elective courses totaling at least 15 credits, 12 of which are at the 300-level or above. These courses should be relevant to the student's individual interests and career plans and may center around one or more environmental/sustainability issues or environmental science disciplines, such as earth science or ecology. Appropriate elective courses are those that concentrate directly on environmental or sustainability issues. The ENVS Director of Undergraduate Studies (DUS) distributes a list of pre-approved elective courses each semester, and approval for other courses can be sought by emailing the major advisor and DUS.

First Year

First Semester	Credits	Second Semester	Credits
AS.270.103	3	AS.271.107	3
AS.030.101	3	AS.030.102	3
AS.110.108	4	AS.110.109	4
AS.190.111	3		
	13		10

Second Year

First Semester	Credits	Second Semester	Credits
AS.270.202	3	AS.270.205	3
AS.020.151	3	AS.020.152	3
AS.020.153	1	AS.020.154	1
EN.553.111	4	AS.180.102	3
	11		10

Third Year

First Semester	Credits	Second Semester	Credits
AS.270.336	3	AS.271.399	1
AS.270.337	1	AS.271.401	3
Elective course	3	AS.271.509	1
Elective course	3	Elective course	3
	10		8

Fourth Year

First Semester	Credits	Second Semester	Credits
AS.271.496	3	AS.271.403	3
AS.271.499	1	Elective course	3
Elective course	3		
	7		6

Total Credits 75

- Earn a cumulative GPA of 3.5 in the courses taken to fulfill the major requirements.
- Successfully complete 3 credits of senior thesis, AS.271.511 Senior Thesis, beyond the senior capstone experience involving an environmental or sustainability-related research project or other comparable scholarly endeavor.
- Earn a rating of good or excellent on the final product of the thesis, as determined by the faculty research advisor.
- Present the results of the thesis orally in an appropriate JHU department.

B.A./M.S. Option

Undergraduates majoring in Environmental Science may apply for accelerated status toward an M.S. in Environmental Sciences and Policy (ESP) or an M.S. in Geographic Information Systems (GIS) through the JHU Krieger School of Arts & Sciences' Advanced Academic Programs. Interested students should speak with their advisor and the Director of the ESP and GIS Programs, Jerry Burgess (jerry.burgess@jhu.edu), in their senior year. Students may apply up to three courses taken as undergraduates toward the M.S. in Environmental Science and Policy and up to two courses toward the M.S. in GIS, thereby leaving only seven to eight more courses to complete the M.S. following receipt of their bachelor's degree. Students will receive two separate degrees, so the requirements of both degrees must be fulfilled. Students cannot earn the M.S. degree without completion of the B.A. or B.S., however, students who do not complete the M.S. retain their B.A. or B.S.

Honors in the Environmental Science Major

To qualify for honors in the major, a student must: