

ENVIRONMENTAL SCIENCE MAJOR WITH ENVIRONMENTAL CHEMISTRY OPTION, BACHELOR OF SCIENCE (BS)

Environmental Science is an interdisciplinary field that combines physical, chemical, and biological sciences with social, political, and economic understanding needed to study the environment and address environmental problems. The Environmental Science program integrates classroom work in biology, chemistry, geosciences, and social sciences (economics and planning) with extensive field, lab, and research experience. All students take a core of Environmental Science courses complemented by a concentration in one of the three core sciences (biology, chemistry, and geoscience). Motivated students have the opportunity to obtain a double major in both Environmental Science and their concentration area. Graduates leave Eastern with the necessary professional and technical skills for employment in the environmental profession or entry into graduate or professional school.

Each student should meet with an advisor when declaring environmental science as a major.

Students should start the program with the necessary mathematics background to enter into the calculus or statistics sequence.

MATH 141	PRECALCULUS I (or equivalent)
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It is recommended that students complete these required courses within the first two years.

ENVS 100	INTRODUCTION TO ENVIRONMENTAL SCIENCE
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BIOL 171 & BIOL 172 & BIOL 173	BIOLOGY I and BIOLOGY II and BIOLOGY III
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CHEM 171 & 171L & CHEM 172 & CHEM 172L & CHEM 173 & CHEM 173L	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I and GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II and GENERAL CHEMISTRY III and GENERAL CHEMISTRY LABORATORY III
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GEOS 111 & GEOS 112	THE EARTH'S INTERIOR and THE EARTH'S SURFACE
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All Environmental Science students must take a junior year and a final senior year environmental seminar.

ENVS 300	ENVIRONMENTAL SCIENCE JUNIOR SEMINAR	1
ENVS 400	ENVIRONMENTAL SCIENCE SENIOR SEMINAR	1

Note: some course options may not result in there being 60 upper division credits required for graduation within the major—advisor consultation is required.

Grade Requirements: students must maintain an average GPA ≥ 2.0 in the major to graduate from the program.

Note: may only count BIOL 380 once.

Required Environmental Science Courses

BIOL 171	BIOLOGY I	5
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BIOL 172	BIOLOGY II	5
BIOL 173	BIOLOGY III	5
BIOL 270	BIOLOGICAL INVESTIGATION	3
BIOL 440	ECOLOGY	4
CHEM 171 & 171L & CHEM 172 & CHEM 172L & CHEM 173 & CHEM 173L	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I and GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II and GENERAL CHEMISTRY III and GENERAL CHEMISTRY LABORATORY III	15
DSCI 245	BUSINESS STATISTICS 1 (may only count BIOL 380 once)	4-5
or BIOL 380	DATA ANALYSIS FOR BIOLOGISTS	
or MATH 380	ELEMENTARY PROBABILITY AND STATISTICS	
DSCI 346	BUSINESS STATISTICS 2 (may only count BIOL 380 once)	4-5
or BIOL 380	DATA ANALYSIS FOR BIOLOGISTS	
or MATH 161	CALCULUS I	
ECON 100	GENERAL EDUCATION ECONOMICS	5
ENVS 100	INTRODUCTION TO ENVIRONMENTAL SCIENCE	5
ENVS 300	ENVIRONMENTAL SCIENCE JUNIOR SEMINAR	1
ENVS 400	ENVIRONMENTAL SCIENCE SENIOR SEMINAR	1
GEOS 111 or GEOS 100	THE EARTH'S INTERIOR DISCOVERING GEOLOGY	5
GEOS 112 or GEOS 113	THE EARTH'S SURFACE THE EARTH'S CLIMATE AND WEATHER	5
GEOS 320	ENVIRONMENTAL GEOLOGY	4
GEOS 323 or ENVS 323	GEOGRAPHIC INFORMATION SYSTEMS I: SPATIAL ANALYSIS FOR ENVIRONMENTAL SCIENCES GEOGRAPHIC INFORMATION SYSTEMS I: SPATIAL ANALYSIS FOR ENVIRONMENTAL SCIENCES	5
GEOS 470	GROUNDWATER HYDROLOGY	4
PLAN 431 or PLAN 430	ENVIRONMENTAL IMPACT STATEMENTS ENVIRONMENTAL PLANNING	3
Environmental Chemistry—Required Chemistry Courses		
CHEM 304 & 304L	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	6
CHEM 316 & 316L	ENVIRONMENTAL CHEMISTRY and ENVIRONMENTAL CHEMISTRY LAB	5
CHEM 351	ORGANIC CHEMISTRY	4
CHEM 352	ORGANIC CHEMISTRY	4
CHEM 372	ORGANIC CHEMISTRY LABORATORY I	3
Chemistry Elective—choose one		5-6
CHEM 353 & CHEM 373	ORGANIC CHEMISTRY and ORGANIC CHEM LABORATORY II	
CHEM 420	INSTRUMENTAL ANALYSIS	
CHEM 480	BIOCHEMISTRY	
Required Capstone/Thesis		
CHEM 491	SENIOR THESIS	4-6
Total Credits		114-119

University Competencies and Proficiencies

English (<http://catalog.ewu.edu/undergraduate-degree/#newitemtext>)

Quantitative and Symbolic Reasoning (<http://catalog.ewu.edu/undergraduate-degree/#mathcompproficienciestext>)
 Placement and Clearance (<http://catalog.ewu.edu/placement/>)
 Prior Learning/Sources of Credit AP, CLEP, IB (<http://catalog.ewu.edu/prior-learning/>)

General Education Requirements (<http://catalog.ewu.edu/undergraduate-degree/#generaleducationrequirements>) (GER)

- Minimum Credits—180 cumulative credit hours
 - 60 upper-division credits (300 level or above)
 - 45 credits in residence (attendance) at Eastern, with at least 15 upper-division credits in major in residence at Eastern
- Minimum Cumulative GPA ≥ 2.0

Breadth Area Core Requirements (BACR)

Humanities and Arts (<http://catalog.ewu.edu/undergraduate-degree/#humanitiesandfineartsgecrtext>)
 Natural Sciences (<http://catalog.ewu.edu/undergraduate-degree/#naturalsciencesgecrtext>)
 Social Sciences (<http://catalog.ewu.edu/undergraduate-degree/#socialsciencesgecrtext>)

University Graduation Requirements (<http://catalog.ewu.edu/undergraduate-degree/#universitygraduationrequirements>) (UGR)

Diversity Course List (<http://catalog.ewu.edu/undergraduate-degree/#cultureandgenderdiversityintheuslisttext>)
 Foreign Language (<http://catalog.ewu.edu/undergraduate-degree/#foreignlanguageugrtext>) (for Bachelor of Arts)
 Global Studies Course List (<http://catalog.ewu.edu/undergraduate-degree/#internationalstudiesrequirementtext>)
 Minor or Certificate (<http://catalog.ewu.edu/undergraduate-degree/#majorminororcertificateugrtext>)
 Senior Capstone Course List (<http://catalog.ewu.edu/undergraduate-degree/#capstonecourselisttext>)

Application for Graduation (use EagleNET (<https://inside.ewu.edu/eaglenet/>)) must be made at least two terms in advance of the term you expect to graduate (undergraduate and post-baccalaureate).

Use the Catalog Archives (<https://catalog.ewu.edu/archives/>) to determine two important catalog years (<http://catalog.ewu.edu/undergraduate-degree/#activecatalogruletext>).

Degree Works (<https://inside.ewu.edu/records-and-registration/degree-works/>) calculates based on these two catalog years.

- a. The catalog *in effect at the student's first term* of current matriculation is used to determine **BACR** (Breadth Area Credit Requirements) **and UGR** (Undergraduate Graduation Requirements).
 - b. The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.
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Students who successfully earn a BS in Environmental Science with Environmental Chemistry from EWU should be able to do the following:

- demonstrate effective oral, graphical, and written communication abilities, and critical thinking skills as related to the environmental sciences;
- demonstrate knowledge of the interrelationships among the physical and biological components of ecosystems;
- develop an integrated knowledge of major concepts in the area of environmental sciences and an understanding of fundamental roles that biology, chemistry, and geology play in environmental science;
- develop sufficient preparation in the environmental sciences to successfully compete in a graduate or professional program, or to realize employment in an environmental sciences-related career;
- use epistemologically sound quantitative techniques for the analysis of biotic and abiotic samples and systems.