

Environmental Science Major: Environmental Microbiology Track - Bachelor of Science (BS)

Major requirements

(All colleges)

55-60 credits

Core

Code	Title	Credits
BIO 105	General Biology	4
CHM 103	General Chemistry I	5
ENV 101	Introduction to Sustainability and Environmental Studies	3
GEO 101	Earth Environments	4
GEO 221	Weather and Climate	4
or GEO 222	Earth Surface Processes and Landforms	
GEO 305	Geographic Information Systems and Science I	3
GEO 401	Capstone Seminar in Geography and Environmental Science	1
MIC 230	Fundamentals of Microbiology	4
STAT 145	Elementary Statistics	4

Humans and the environment electives

Select two courses from the following:		6
ENV 303	Topics in Environmental Studies	
ENV 304	Topics in Environmental Justice	
GEO 309	Cities: Past, Present, and Future	
GEO 310	Transportation Equity and Sustainable Communities	
GEO 320	Energy, the Environment, and Sustainability	
GEO 321	Sustainable Development and Conservation	
GEO 340	Polar Environments	
GEO 427	Sustainable Water Resource Management	

Earth's environmental systems electives

Select two courses from the following:		6-7
GEO 222	Earth Surface Processes and Landforms ¹	
or GEO 221	Weather and Climate	
GEO 422	Meteorology	
GEO 425	Biogeography	
GEO 428	Past Environmental Change	
GEO 430	River Systems	
GEO 460	Environmental Hazards	

Quantitative analysis electives

Select one course from the following:		2-5
BIO 202	Introduction to Biological Data Analysis and Interpretation	
BIO 419	Quantitative Methods in Ecology	

CHM 301	Analytical Chemistry
GEO 488	Quantitative Methods in Geography
MTH 207	Calculus I
MTH 265	Mathematical Models in Biology
STAT 305	Statistical Methods

Environmental science field experience electives

Select three credits from the following:		3
GEO 410	Geospatial Field Methods	
GEO 412	Geospatial Applications of Unmanned Aerial Systems	
GEO 450	Internship in Geography and Environmental Science	
GEO 499	Research in Geography and Environmental Science	
BIO 341	Limnology	
BIO 447	Standard Methods/Quality Assurance Water Analyses	
BIO 499	Independent Research	
CHM 413	Environmental Chemistry Laboratory	
CHM 479	Field Research Station Experience	
CHM 499	Research	
MIC 499	Independent Research in Microbiology	

Total Credits **49-53**

¹ GEO 221 or GEO 222 may apply to "Earth's Environmental Systems" electives if not used in the core.

Environmental microbiology track requirements

Code	Title	Credits
Select two courses from the following:		6-7
MIC 350	Bacterial Diversity	
MIC 427	Industrial and Fermentation Microbiology	
MIC 434	Aquatic Microbial Ecology	
MIC 442	Plant Microbe Interactions	
BIO 412	Mycology	

Total Credits **6-7**

Exit survey requirement

During the student's last semester of enrollment, completion of the Department of Geography and Environmental Science exit survey is required in order to graduate.

Minor recommendation

It is recommended that environmental science majors complete a minor in earth science, human and environmental geography, geographic information science, geoarchaeology, environmental studies, biology, chemistry, and/or microbiology. Selection of a minor should be done in consultation with your academic advisor.

Degree requirements

All students must complete the general education, college core, major/minor, and university degree requirements in order to qualify for a degree. The easiest way to track all of these requirements is to refer to

the Advisement Report (AR) found in the Student Information System (WINGS) Student Center. All enrolled students have access to the AR.

- General education (<https://catalog.uwlax.edu/undergraduate/generaleducation/>)
- College core (p. 2)
- Baccalaureate degree requirements (p. 2)

College of Science and Health (CSH) Bachelor of Science core requirements

B.S. and B.A. students graduating from the College of Science and Health are required to take two natural laboratory science courses selected from the general education laboratory science category (GE 05) and/or from BIO 203, BIO 304, BIO 210, CHM 104, GEO 221, GEO 222, PHY 104 or PHY 204, and they either must take two mathematics courses or one math course and one computer science course from the math/logical systems category of the general education requirements (GE 02). One of the two science courses must be from a department outside of the student's major department.

Note: Math courses can be pairs, i.e. 150 and 151; MTH/CS majors can use two science courses from same department.

For the Bachelor of Science degree, in addition to all other College of Science and Health core requirements, students from non-exempted programs¹ must complete one of the following options. It is recommended that courses are selected in consultation with students' academic advisor.

1. Complete a second major; or
2. Complete a minor outside the major; or
3. Complete two certificates outside the major with at least 12 combined credits at the 300/400 level; or
4. Complete an individualized option, consisting of 18 credits
 - a. At least 12 credits must be earned at the 300/400 level outside the major department.
 - b. The remaining six credits should come from
 - i. 100 level or higher courses outside the major (General education courses may apply provided they are not being used to fulfill minimum general education requirements.); or
 - ii. 300/400 level courses inside major not being used to fulfill major requirements.
 - c. Internship credits may not count toward the individualized option.

¹ The list of exempted CSH programs is below.

Baccalaureate degree requirements

Candidates for the Bachelor of Arts or the Bachelor of Science degrees must accomplish the following:

1. Fulfill the general education requirements.
2. Complete at least one ethnic studies (diversity) course.

3. Complete the courses prescribed by the Undergraduate Curriculum Committee for the degree desired in the respective school or college.
4. Earn a minimum of 120 semester credits with at least a 2.00 cumulative GPA.^{1, 2}
5. At least 40 credits must be earned in 300/400 level courses. Transfer courses earned or transferred at the 300/400 level apply to this requirement.
6. Complete major and minor requirements with at least a 2.00 GPA^{1, 2} in each major and minor (and concentration or emphasis, if selected).
7. A minimum of 30 semester credits in residence at UWL is required for graduation. (See undergraduate resident requirement (<http://catalog.uwlax.edu/undergraduate/academicpolicies/graduation/#undergraduate-residence-requirement>)).
8. Submit an application for graduation via the "Apply for Graduation" link in the WINGS Student Center as soon as the student has registered for his or her final semester or summer term in residence. December and winter intersession graduates should apply by May 1. May and summer graduates should apply by December 1.

¹ Grade point average requirements for some programs will be considerably higher than 2.00. Re-entering students may be required to earn credits in excess of the 120 needed for graduation in any curriculum in order to replace credits earned in courses in which the content has changed substantially in recent years. Each case will be judged on its own merit.

² The grade point average recorded at the time the degree is awarded will not be affected by future enrollment.

No degree will be awarded unless all requirements are fulfilled and recorded within 30 days after the official ending date of each term.

Sample degree plan

Below is a sample degree plan that can be used as a guide to identify courses required to fulfill the major and other requirements needed for degree completion. A student's actual degree plan may differ depending on the course of study selected (second major, minor, etc.). Also, this sample plan assumes readiness for each course and/or major plan, and some courses may not be offered every term. Review the course descriptions or the class timetable (<http://www.uwlax.edu/records/registration/>) for course offering information.

The sample degree plans represented in this catalog are intended for first-year students entering UWL in the fall term. Students should use the Advisement Report (AR) in WINGS (<https://wings.uwlax.edu>) and work closely with their faculty advisor(s) and college dean's office to ensure declaration and completion of all requirements in a timely manner.

General Education Program

The general education curriculum (Gen Ed) is the common educational experience for all undergraduates at UWL. Sample degree plans include Gen Ed placeholders to ensure completion of the general education requirements. Courses may be rearranged to fit the needs or recommendations of the student's program of study. Gen Ed courses may be taken during winter term (January between the semesters) and summer to reduce the course load during regular terms (fall and spring). Students should consult with their advisor and/or the college academic services director in their college/school for assistance with course and schedule planning. Refer to the general education requirements (<http://catalog.uwlax.edu/undergraduate/generaleducation/>) for more specific details.

At least 40 credits of the 120 credits required must be earned at the 300/400-level.

Note: New students and transfer students with less than 12 credits earned are required to take FYS 100 First-Year Seminar (3 cr.) during one of their first two semesters at UWL.

This sample degree plan does not establish a contractual agreement. It identifies the minimum requirements a student must successfully complete, to qualify for a degree, in a format intended to assist the student in planning their academic career. Actual degree plans may differ.

Year 1

Fall	Credits Spring	Credits
BIO 105 (Gen Ed Lab Science)	4 CHM 103	5
ENG 110 or 112 (Gen Ed Literacy-Written)	3 CST 110 (Gen Ed Literacy-Oral)	3
FYS 100 (Gen Ed First-Year Seminar)	3 GEO 101	4
MTH 150 or 151 (Gen Ed Math)	4 Gen Ed World History	3
	14	15

Year 2

Fall	Credits Spring	Credits
ENV 101 (Gen Ed Global Studies)	3 MIC 230	4
STAT 145 (Gen Ed Math/Lang/Logical Systems)	4 Earth's Climate and Landforms (see list)	4
Gen Ed Minority Cultures	3 Gen Ed Humanistic Studies	3
Gen Ed Health & Well-Being	3 Gen Ed Self & Society	3
Gen Ed Arts	2-3 Gen Ed Arts	2-3
	15	16

Year 3

Fall	Credits Spring	Credits
GEO 305	3 Earth's Environmental Systems (see list) (Writing Emphasis)	3
Earth's Environmental Systems (see list)	3-4 Quantitative Analysis (see list)	3-4
Human and the Environment (see list) (Writing Emphasis)	3 Humans and the Environment (see list)	3
CSH Core or Minor ¹	3 University Elective	3
CSH Core (300/400 not GEO) or Minor	3 CSH Core (300/400 not GEO) or Minor	3
	15	16

Year 4

Fall	Credits Spring	Credits
Environmental Science Field Experience (see list)	3 GEO 401	1
Microbiology Track (see list)	3-4 Microbiology Track (see list)	3
CSH Core or Minor ¹	3 CSH Core (300/400 not GEO) or Minor	3
University Elective	3 CSH Core (300/400 not GEO) or Minor	3
CSH Core (300/400 not GEO) or Minor	3 University Elective	3
	Exit Survey Requirement ²	
	16	13

Total Credits: 120

² During the student's last semester of enrollment, completion of the Department of Geography and Environmental Science exit survey is required in order to graduate.

¹ See CSH BS Core Requirements (<http://catalog.uwlax.edu/undergraduate/scienceandhealth/#Core>) for information on completing the individualized option. 300/400 requirements for graduation may be impacted.