

Chemistry Major with Environmental Science Concentration - Bachelor of Science (BS)

The chemistry major with an environmental science concentration at UW-La Crosse provides a strong background in chemistry, while providing multi-disciplinary elective options in preparation for fields of study such as climate change, contaminants, renewable energy, geospatial analysis, and ecosystem modeling. Our majors are in demand and are routinely hired into industry, government, and academic positions.

Major requirements

(All colleges, excluding teacher certification programs)

53 credits (74 total credits including MTH and PHY requirements)¹

Core curriculum and electives

Code	Title	Credits
BIO 105	General Biology	4
or GEO 101	Earth Environments	
CHM 103	General Chemistry I	5
CHM 104	General Chemistry II	5
CHM 271	The Chemical Community	1
CHM 301	Analytical Chemistry	5
CHM 303	Organic Chemistry Theory I	3
CHM 304	Organic Chemistry Theory II	3
CHM 305	Organic Chemistry Laboratory	2
CHM 309	Physical Chemistry Theory I	3
CHM 312	Atmospheric Chemistry	3
CHM 412	Aquatic and Soil Chemistry	3
CHM 413	Environmental Chemistry Laboratory	2
CHM 441	Instrumental Analysis	4
Electives		
Select 10 credits from only one of the following elective groups:		10
Environments group		
BIO 341	Limnology	
BIO 419	Quantitative Methods in Ecology	
BIO 441	Environmental Toxicology	
BIO 447	Standard Methods/Quality Assurance Water Analyses	
MIC 434	Aquatic Microbial Ecology	
CHM 322	Chemistry of Materials	
CHM 479	Field Research Station Experience (Field Research) ²	
CHM 499	Research ²	
Earth science group		
GEO 222	Earth Surface Processes and Landforms	
GEO 305	Geographic Information Systems and Science I	

GEO 405	Geographic Information System and Science II
GEO 410	Geospatial Field Methods
GEO 425	Biogeography
GEO 428	Past Environmental Change
GEO 430	River Systems
CHM 479	Field Research Station Experience (Field Research) ²
CHM 499	Research ²
Math methods group	
MTH 265	Mathematical Models in Biology
MTH 309	Linear Algebra
MTH 353	Differential Equations and Dynamical Systems
STAT 245	Probability and Statistics
STAT 305	Statistical Methods
CHM 499	Research ²
Total Credits	53

¹ Students in this major are exempt from the College of Science and Health core requirements.

² Repeatable up to two credits.

Required prerequisite courses (21 credits)

Code	Title	Credits
Select an additional 21 credits to meet prerequisites for required courses including the following:		
MTH 207	Calculus I	5
MTH 208	Calculus II	4
MTH 310	Calculus III: Multivariable Calculus	4
PHY 103	Fundamental Physics I	4
or PHY 203	General Physics I	
PHY 104	Fundamental Physics II	4
or PHY 204	General Physics II	
Total Credits		21

Exam and survey requirement

During the student's last semester on campus, completion of the following is required in order to graduate:

- the Department of Chemistry and Biochemistry Learning Environment Survey
- a standardized exam covering the major subject areas.

Degree requirements

All students must complete the general education, college core (waived for chemistry majors with environmental science concentrations), 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 (<http://catalog.uwlax.edu/undergraduate/generaleducation/>)
- Baccalaureate degree requirements (p. 2)

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.

This major is exempt from the CSH College Core requirement.

Year 1		
Fall	Credits Spring	Credits
CHM 103 (Gen Ed Natural Lab Science)	5 CHM 104	5
ENG 110 or 112 (Gen Ed Literacy-Written)	3 CST 110 (Gen Ed Literacy-Oral)	3
Gen Ed Arts	2-3 MTH 207 (Gen Ed Math)	5
MTH 151 (Gen Ed Math)	4 FYS 100 (Gen Ed First-Year Seminar)	3
	14	16
Year 2		
Fall	Credits Spring	Credits
CHM 303	3 CHM 304	3
CHM 271	1 CHM 305	2
MTH 208 (Gen Ed Math)	4 Gen Ed Global Studies	3
PHY 103 or 203	4 MTH 310	4
BIO 105 or GEO 101 (Gen Ed Nat Lab Science)	4 PHY 104 or 204	4
	16	16
Year 3		
Fall	Credits Spring	Credits
CHM 309	3 CHMENV Elective Group - see list	3-4
CHM 301	5 CHM 412	3
CHM 312	3 Gen Ed Humanistic Studies	3
Gen Ed World History	3 Gen Ed Health & Well-Being	3
	University Elective	3
	14	15
Year 4		
Fall	Credits Spring	Credits
CHM 413	2 CHMENV Elective Group - see list	3-4
CHM 441	4 University Elective	3
University Elective	3 University Elective	2
CHMENV Elective Group - see list	3-4 Gen Ed Self & Society	3
Gen Ed Arts	2-3 Gen Ed Minority Cultures	3

	Exam and Survey Requirement ¹	
14		15

Total Credits: 120

¹ Exam and Survey Requirement - During the student's last semester on campus, completion of the following is required in order to graduate:

1. the Department of Chemistry and Biochemistry Learning Environment Survey and
2. a standardized exam covering the major subject areas.