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

Major requirements

(All colleges, excluding teacher certification programs)

39 minimum - 41 maximum microbiology/biology credits (75 total credits including requirements outside of BIO/MIC)

Biology core

BIO 105 General Biology 4
Select one of the following: 3-4
BIO 203 Organismal Biology
BIO 210 Animal Biology
BIO 304 Plant Biology

Microbiology core

MIC 230 Fundamentals of Microbiology 4
MIC 350 Bacteriology 3
MIC 416 Microbial Genetics 5
MIC 425 Bacterial Physiology 5
MIC 434 Aquatic Microbial Ecology 3
MIC 461 Capstone in Microbiology 1

Microbiology/biology electives

Select at least five credits from List I, at least three credits from List II, and a maximum of two credits from List III. (see Electives list below)

Additional requirements

MTH 145 or MTH 245: Elementary Statistics 4
MTH 175 or MTH 207: Applied Calculus 4
Select one course in physics: 4
PHY 125 Physics for the Life Sciences
PHY 104 Fundamental Physics II
PHY 204 General Physics II
Select a minimum of 24 credits of chemistry including: 24
CHM 103 General Chemistry I
CHM 104 General Chemistry II
CHM 301 Analytical Chemistry
Select one of the following:
CHM 300 Survey of Organic Chemistry
CHM 303 Organic Chemistry Theory I
& CHM 304 and Organic Chemistry Theory II
& CHM 305 and Organic Chemistry Laboratory
Select one of the following:
CHM 325 Fundamental Biochemistry

Electives

List I

MIC 407 Pathogenic Bacteriology 4
MIC 420 Introductory Virology 3
MIC 421 Virology Laboratory 2
MIC 427 Industrial and Fermentation Microbiology 3
MIC 428 Fermentation Microbiology Laboratory 2
BIO 307 Ecology 1 3
BIO 341 Limnology 1 3
BIO 464 Stream and Watershed Ecology 1 3
BIO 441 Environmental Toxicology 3
BIO 447 Standard Methods/Quality Assurance Water Analyses 3
BIO 449 Advanced Microscopy and Biological Imaging 3

List II

MIC 440 Bioinformatics 2
MIC 442 Plant Microbe Interactions 3
BIO 406 Parasitology 4
BIO 412 Mycology 4

List III

BIO 202 Introduction to Biological Data Analysis and Interpretation 2
MIC 479 Microbiology Laboratory Assistant (only one credit applies to List III) 1-2
MIC 489 Independent Study in Microbiology 1-2
MIC 499 Independent Research in Microbiology 1-2

1 Only one course (3 credits) from BIO 307, BIO 341, and BIO 464 may be applied to elective requirements.

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 (http://catalog.uwlax.edu/undergraduate/generaleducation)
- College core (p. 1)
- Baccalaureate degree requirements (p. 2)

College of Science and Health (SAH) 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 from BIO 203, BIO 304, BIO 210, CHM 104, ESC 221, ESC 222.
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 mathematical 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, students must complete a major from the college plus:

- a minor (or a second major) from any college or
- 18 credits at the 300/400 level in courses outside the major department from any college. Internship credits generally do not count toward this college core option.

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. (No substitutions for graduation may be made in course requirements for a major or minor after the fourth week of the last semester of the senior year.)
4. Earn a minimum of 120 semester credits with at least a 2.00 cumulative GPA. At least 40 credits must be earned in 300/400 (senior college) level courses. Courses earned at the 100/200 level that transferred to UW-L as 300/400 level courses do not apply to this requirement nor do courses from two-year schools.
5. Complete major and minor requirements with at least a 2.00 GPA in each major and minor (and concentration or emphasis, if selected).
6. A minimum of 30 semester credits in residence at UW-L is required for graduation. (See undergraduate resident requirement (http://catalog.uwlax.edu/undergraduate/academicpolicies/graduation/#undergraduate-residence-requirement).)
7. File a completed “Apply for Graduation” form via 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 file by May 1. May and summer graduates should file by December 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.

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 the courses required to complete the major and other requirements needed for degree completion. The actual degree plan may differ depending on the course of study selected (second major, minor, etc.). This sample plan also assumes readiness for each course and/or major plan. Actual degree plans may differ. Some courses may not be offered every term. Review course descriptions or the class timetable for course offering information.

The sample degree plans represented in this catalog are intended for first-year students entering UW-L in the fall term. Students should use the Advisement Report (AR) in WINGS (https://wings.uwlax.edu/pac?cmd=login&amp;languageCd=ENG&amp;...) 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

General education (Gen Ed) is the common educational experience for all undergraduates at UW-L. Sample degree plans include Gen Ed placeholders to ensure completion of the general education curriculum. 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). Consult with your advisor and/or the assistant to the dean in your college for assistance with course and schedule planning. Refer to the general education requirements (http://catalog.uwlax.edu/undergraduate/generaleducation) for more specific details.

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

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 plan their academic career.

Year 1

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<td>CHM 104</td>
<td>4 PHY 125 (Gen Ed Natural Lab Science)</td>
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<td>Gen Ed Hum-Lit</td>
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Total Credits: 120

1 Or CHM 303, CHM 304, or CHM 305.
2 Or CHM 417 and CHM 418.