

Microbiology: Clinical Microbiology Emphasis - Master of Science

This emphasis is offered by the Department of Biology, the Department of Microbiology, Gunderson Lutheran Medical Center, Marshfield Laboratories/St. Joseph's Hospital/Marshfield Clinic, and the Wisconsin State Laboratory of Hygiene. This program involves on-campus coursework and clinical rotations at Gunderson-Lutheran Medical Center, Marshfield Laboratories/St. Joseph's Hospital/Marshfield Clinic, and the Wisconsin State Laboratory of Hygiene. Students who complete the clinical microbiology emphasis are eligible to secure Specialist Microbiologist (SM-AAM) certification of the American Academy of Microbiology. The combination of classroom education, clinical rotations, and research experience will prepare students for a variety of employment opportunities including:

1. Supervisory positions in medical centers and public health and private reference laboratories
2. Research and development positions in academia, government agencies, or industry
3. Infection control positions in clinical settings
4. Public health and epidemiology
5. Marketing and sales in the pharmaceutical or biotechnology industries, and
6. Teaching at community or technical colleges.

Program requirements

Admission

Individuals accepted into the graduate Microbiology: Clinical Microbiology Emphasis Program must have:

1. A Bachelor of Science degree or equivalent in microbiology, biology, or a related field with competency in microbiology. Graduates with a clinical laboratory science degree from a program accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) are also eligible.
2. Minimum prerequisites for admission to the program are MIC 230 Fundamentals of Microbiology, MIC 310 Immunology, MIC 410/MIC 510 Immunology Laboratory, MIC 407/MIC 507 Pathogenic Bacteriology, or equivalent courses. A strong chemistry background including biochemistry is strongly recommended. Students lacking prerequisites may be conditionally admitted to the emphasis program contingent on remediation of prerequisites. Remediated prerequisite courses do not count toward the M.S. degree.
3. An overall undergraduate grade point average of at least 2.85 on a 4.00 scale, an average of at least 3.00 in the last half of all undergraduate work, or an average of at least 3.00 for no less than 12 semester credits of graduate study at another accredited graduate school. Some programs have higher grade point average admission requirements.
4. (Optional) Completion of the Graduate Record Examination (GRE) is not required, but scores may be considered if available. To submit scores, select UW-La Crosse (code 1914) when taking the GRE.
5. International applicants for graduate study who are not native speakers of English must meet the English language

proficiency requirements in the Graduate Admission Policy (<http://catalog.uwlax.edu/graduate/admissions/#international-admission>).

6. Information about the application process can be found on the program's application process page (<https://www.uwlax.edu/grad/microbiology/application-process/>). Applicants are also encouraged to review information regarding graduate assistant positions in biology and microbiology, available on the program's financial aid page (<https://www.uwlax.edu/grad/microbiology/financial-aid/>).
7. Three current letters of recommendation.
8. An application letter which details:
 - a. Academic and professional goals
 - b. Previous relevant experiences
 - c. Reasons for selecting program
 - d. Intent to pursue thesis or non-thesis track or undecided
 - e. Research interest(s) if pursuing the thesis track
 - f. Possible faculty mentor(s) for research if pursuing the thesis track, if known

Completed applications must be returned to the Admissions Office by January 10th for US students and January 3rd for international students. Early applications can be considered prior to the deadline. A review committee will assess all submitted materials and a letter of decision will be sent to the applicant. An interview may be required in some instances. Acceptance or non-acceptance is based upon a comprehensive review of all elements of the completed application. Late applications will be considered if enrollment objectives have not been satisfied. Consideration for fellowships is extremely unlikely with late applications.

The graduate Microbiology Program (<https://www.uwlax.edu/grad/microbiology/application-process/>) has further application and contact information online.

Curriculum

The Master of Science in Microbiology with a Clinical Microbiology Emphasis requires:

1. Completion of a research thesis (Plan A) or seminar paper (Plan B) in an area of clinical microbiology (including an oral defense of the thesis or seminar paper),
2. Passing a written comprehensive exam and an oral comprehensive exam, and
3. Completion of the core curriculum of a minimum of 32 credits.

Code	Title	Credits
Plan A - Thesis		
MIC 500	Microbiology Graduate Program Orientation	2
MIC 554	Mechanisms of Microbial Pathogenicity	2
MIC 751	Graduate Seminar ¹	2
MIC 753	Epidemiology of Infectious Disease	2
MIC 755	Advanced Immunology	2
MIC 770	Clinical Microbiology Practicum I	4
MIC 780	Clinical Microbiology Practicum II	4
MIC 790	Clinical Microbiology Practicum III	2
MIC 799	Research: Master's Thesis	6
Electives		6
Total Credits		32

Code	Title	Credits
Plan B - Seminar Paper		
MIC 500	Microbiology Graduate Program Orientation	2
MIC 554	Mechanisms of Microbial Pathogenicity	2
MIC 751	Graduate Seminar ¹	2
MIC 753	Epidemiology of Infectious Disease	2
MIC 755	Advanced Immunology	2
MIC 761	Research and Seminar in Microbiology	2
MIC 770	Clinical Microbiology Practicum I	4
MIC 780	Clinical Microbiology Practicum II	4
MIC 790	Clinical Microbiology Practicum III	2
Minimum electives		10
Total Credits		32

¹ Graduate students are expected to attend a graduate seminar twice during their first four semesters. The student must register for MIC 751 for two of their last three semesters, enrolling in the class during those semesters in which they present a seminar.

Code	Title	Credits
Electives for Plan A & B		
MIC 516	Prokaryotic Molecular Genetics	4
MIC 520	Introductory Virology	3
MIC 521	Virology Laboratory	2
MIC 525	Bacterial Physiology	4
MIC 540	Bioinformatics	2
MIC 558	Research Deconstruction	2
MIC 560	Symposium in Microbiology	1-3
MIC 714	Advanced Genetics	3
MIC 721	Directed Studies	1-2
CLI 540	Clinical Parasitology	1
CLI 584	Laboratory Management	2
BIO 506	Parasitology	4
BIO 512	Mycology	4
BIO 513	Medical Mycology	3
BIO 535	Molecular Biology	3
BIO 536	Molecular Biology Laboratory	1
BIO 549	Advanced Microscopy and Biological Imaging	3
BIO 700	Biology Graduate Program Orientation	2
BIO 701	Communication in the Biological Sciences	4
CHM 545	Biochemistry of Antimicrobials	3
PH 755	Epidemiology and Public Health Issues	3

University requirements

Microbiology graduate student requirements:

All graduate students in microbiology must meet the following requirements:

1. Students must complete and submit a plan of study prior to the midterm of the first semester of residence.
2. Ideally, students should submit a written thesis or seminar paper proposal to the advisory committee prior to the midterm of the second semester of residence. Failure to submit a thesis proposal

prior to the fourth semester will result in the student being shifted from thesis track to seminar paper track.

3. Enroll in MIC 500 Microbiology Graduate Program Orientation (2 cr.) during the first semester of residence.
4. Enroll in MIC 751 Graduate Seminar (1 cr.) twice in the first four semesters of residence.
5. Students are encouraged to complete an appropriate graduate course (numbers 500 and above) from outside the department of microbiology. Upon approval of a student's advisory committee, a student may be permitted to take a maximum of 10 graduate credits in other departments.
6. Pass a preliminary oral examination covering the student's area of specialty and advanced course work.
7. Complete at least 15 credits of 700-level course work.
8. Consult this catalog and the department's graduate student guidelines for additional policies pertaining to graduate students in a microbiology program.

University graduate degree requirements

After being admitted to the program of one's choice, candidates for a graduate degree must:

1. Complete any preliminary course work and deficiencies.
2. Complete all courses and other program requirements, including residence requirements prescribed for the degree desired in the respective school or college within a seven-year period from the date of initial enrollment, with the exception of students enrolled in the Student Affairs Administration and Leadership Ed.D. (SAA Ed.D.) graduate program. SAA Ed.D. students must complete all degree requirements within ten years from the time of initial enrollment in the graduate program.
3. Earn a minimum of 30 credits for a master's degree; 54 credits for a doctorate or post-master's degree. Earn at least one-half of the minimum number of credits required in the program in graduate-only level courses (700, 800, 900, and non-slash 600 level courses). Some UWL graduate programs require more than 30 graduate credits. Please review the individual program requirements (<http://catalog.uwlax.edu/graduate/programrequirements/>) listed in the catalog for the exact number of credits required.
4. Earn a cumulative grade point average of at least 3.00.
5. Satisfy dissertation, thesis, seminar paper, terminal/graduate projects and internships, or comprehensive examination, where applicable. A dissertation or thesis approved by the committee must be submitted to Graduate & Extended Learning for editorial review and approval by the Dean of Graduate & Extended Learning. The recommended initial submission date for review is two weeks before commencement. Ordinarily, a seminar paper or project report does not have to be approved by the Dean of Graduate & Extended Learning. However, if the seminar paper or project report is to be archived in Murphy Library, the student must follow the same rules as they apply to the dissertation/thesis requiring approval from the Dean of Graduate & Extended Learning. For further research/dissertation/thesis guidelines (<https://www.uwlax.edu/gel/graduate-education/thesis-and-dissertation/>), see Graduate & Extended Learning.
6. File a completed "Intent to Graduate" form online via the WINGS Student Center immediately following registration for the final semester or summer term in residence. December graduates and winter intersession should file by May 1. May and summer graduates should file by December 1.

7. Pay the graduation fee and remove all other indebtedness to the university. Payment of graduation fees does not imply readiness for graduation and does not take the place of applying for graduation.
8. Complete all requirements within 30 days after the official ending date of a term in order for a degree to be awarded for that term. (See #5 above for separate deadline for written capstone experience.)