

BACTERIOLOGY, M.S.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW–Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirement Detail

Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	21 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Details can be found in the Graduate School's Minimum Graduate Coursework (50%) policy (https://policy.wisc.edu/library/UW-1244).
Overall Graduate GPA Requirement	3.00 GPA required. This program follows the Graduate School's policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	n/a

Assessments and Examinations Research path: thesis is required; coursework path: writing assessment is required.

Language n/a

Requirements

REQUIRED COURSES

The following courses (or equivalent) are required for completion of the M.S. degree for both the coursework and research pathways, and may be fulfilled by courses taken prior to entrance to the M.S. program or as part of the M.S. program.

Code	Title	Credits
General Microbiology		
MICROBIO 303	Biology of Microorganisms	3
Microbial Physiology		
MICROBIO 526	Physiology of Microorganisms	3
Microbial Genetics		
MICROBIO 470	Microbial Genetics & Molecular Machines	3
General Biochemistry		
BIOCHEM 501	Introduction to Biochemistry	3-6
BIOCHEM 507 & BIOCHEM 508	General Biochemistry I and General Biochemistry II	
Masters Seminar		
MICROBIO 875	Special Topics (Masters Degree Seminar)	1
Ethics Workshop ¹		

1

The Ethics Workshop has the goal of fostering ethical and professional conduct. This workshop will be organized by the M.S. program director, and will occur every year in the fall semester. This is a requirement for both path options.

There are two pathways for the M.S. degree: one involving primarily formal coursework with no research requirement (coursework option (<https://masters.bact.wisc.edu/coursework-track/>)), and the other requiring significant laboratory research with a formal written component describing and analyzing the work performed (research option (<https://masters.bact.wisc.edu/research-track/>)).

Coursework Pathway ²

- Coursework should either be on the approved list below or be approved by the program advisor.
- Research (990), Special Problems (699, 999), and Independent Study (899) credits may constitute up to nine credits of the required 30. If a student enrolls in any of these courses, they will be required to complete 15 credits of additional graduate-level coursework.
- Seminar credits and one-credit courses must be approved by the program advisor.

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Note: These pathways are internal to the program and represent different curricular paths a student can follow to earn this degree. Pathway names do not appear in the Graduate School admissions application, and they will not appear on the transcript.

The following commonly taken courses are pre-approved electives for the Coursework Pathway:

Code	Title	Credits
MICROBIO/ SOIL SCI 523	Soil Microbiology and Biochemistry	3
MICROBIO 607	Advanced Microbial Genetics	3
MICROBIO/ BIOCHEM/ GENETICS 612	Prokaryotic Molecular Biology	3
MICROBIO 632	Industrial Microbiology/ Biotechnology	2
MICROBIO 657	Bioinformatics for Microbiologists	3
MICROBIO/ BMOLCHEM 668	Microbiology at Atomic Resolution	3
MICROBIO 710	Microbial Symbiosis	3
M M & I/ PATH- BIO 528	Immunology	3
M M & I 554	Emerging Infectious Diseases and Bioterrorism	2
M M & I/ BIOCHEM 575	Biology of Viruses	2
M M & I/ POP HLTH 603	Clinical and Public Health Microbiology	5
M M & I 704	Infectious Diseases of Human Beings	3
M M & I 740	Mechanisms of Microbial Pathogenesis	3
M M & I/ PATH- BIO 750	Host-Parasite Relationships in Vertebrate Viral Disease	3
GENETICS 525	Epigenetics	3
GENETICS/ CHEM 626	Genomic Science	2
GENETICS 633	Population Genetics	3
GENETICS/ BOTANY/M M & I/ PL PATH 655	Biology and Genetics of Fungi	3
GENETICS 885	Advanced Genomic and Proteomic Analysis	3
ONCOLOGY 675	Advanced or Special Topics in Cancer Research	1-3
BIOCHEM 601	Protein and Enzyme Structure and Function	2
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	3
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4

Research Pathway²

- At least ten credits of formal coursework is required. This coursework must meet one of the following requirements:
 - On the pre-approved list below
 - Approval of M.S. program advisor or the student's research advisor
 - A student may count up to 5 credits from the Required Courses towards the ten credits of formal coursework if taken while in the program

- A minimum of 12 credits of independent research (Research (990), Special Problems (699, 999), and Independent Study (899)) is required, although more are strongly encouraged.
- Seminar credits and one-credit courses must be approved by the program advisor.

2

Note: These paths are internal to the program and represent different pathways a student can follow to earn this degree. Path names do not appear in the Graduate School admissions application, and they will not appear on the transcript.

The following commonly taken courses are pre-approved electives for the Research Path:

Code	Title	Credits
MICROBIO/ SOIL SCI 523	Soil Microbiology and Biochemistry	3
MICROBIO 607	Advanced Microbial Genetics	3
MICROBIO/ BIOCHEM/ GENETICS 612	Prokaryotic Molecular Biology	3
MICROBIO 632	Industrial Microbiology/ Biotechnology	2
MICROBIO 657	Bioinformatics for Microbiologists	3
MICROBIO/ BMOLCHEM 668	Microbiology at Atomic Resolution	3
MICROBIO 710	Microbial Symbiosis	3
M M & I/ PATH- BIO 528	Immunology	3
M M & I 554	Emerging Infectious Diseases and Bioterrorism	2
M M & I/ BIOCHEM 575	Biology of Viruses	2
M M & I/ POP HLTH 603	Clinical and Public Health Microbiology	5
M M & I 704	Infectious Diseases of Human Beings	3
M M & I 740	Mechanisms of Microbial Pathogenesis	3
M M & I/ PATH- BIO 750	Host-Parasite Relationships in Vertebrate Viral Disease	3
GENETICS 525	Epigenetics	3
GENETICS/ CHEM 626	Genomic Science	2
GENETICS 633	Population Genetics	3
GENETICS/ BOTANY/M M & I/ PL PATH 655	Biology and Genetics of Fungi	3
GENETICS 885	Advanced Genomic and Proteomic Analysis	3
ONCOLOGY 675	Advanced or Special Topics in Cancer Research	1-3
BIOCHEM 601	Protein and Enzyme Structure and Function	2

BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	3
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4
ZOOLOGY 430	Comparative Anatomy of Vertebrates	5