

## Interested in This Major?

**Current Students:** Visit us in Lapham Hall, Room S181 or email biosci@uwm.edu

**Not a UWM Student yet?** Contact our Admissions Counselor at let-sci@uwm.edu

**web:** uwm.edu/biology



## What is Microbiology?

Microbiology is the study of microorganisms (bacteria, archaea, protists, fungi) and viruses. The Department offers a BS in Microbiology with research opportunities to conduct original research and investigate different aspects of microbial structure and function.

Microorganisms were the first living things on earth, and they remain the most abundant and the most diverse of all organisms. They can cause diseases of plants, animals and humans; they play critical roles in biogeochemical cycles and bioremediation; and they are important in the food and biotechnology industries.

## Career Opportunities

As a microbiologist, you will be on the cutting edge of developments in industrial production processes, public health, biotechnology, and drug discovery research and development. A degree in Microbiology also prepares you for professional schools like medicine, dentistry, pharmacology and veterinary science, in addition to advanced study in any of the life sciences.

## UWM's Programs

UWM's microbiology major is housed within the Department of Biological Sciences. The Microbiology degree provides course choices for students that include research, laboratory work, and science writing. These courses focus on microorganisms including bacteria, archaea protists, fungi, and viruses.

## Microbiology Requirements

A minimum of 34 credits in major courses are required for the BS. Twenty-six of the 34 credits must be at the 300-level or higher. Exemplary students may receive Honors in the major.

Students should select and meet a departmental advisor early in their career for advice on course options to match their career goals and to declare a major.

## Required Courses, Microbiology

Course #	Course Title
Bio Sci 150, 152	Foundations of Biological Sciences I & II
Bio Sci 325	Genetics
Bio Sci 383	General Microbiology
Bio Sci 529	Molecular Biology of Microorganisms
Bio Sci 540	Microbial Diversity and Physiology
Bio Sci 315	Cell Biology
Or	
Chem 501	Introduction to Biochemistry
Bio Sci 539	Lab Techniques in Molecular Biology
Or	
Bio Sci 580	Experimental Microbiology
Electives chosen from a list of approved classes to reach a total of 26 upper-level Bio Sci credits	
Capstone research class or hands-on research experience	

Microbiology students must also take these related classes:

Course #	Course Title
Chem 102, 104	Intro Chemistry sequence
Chem 343, 344, 345	Organic Chemistry Sequence
A two semester physics requirement + physics II lab	
Math 211 or 213 or 221 or 231	
And	
Math 222 or 232 or Bio Sci 465	

## Research Opportunities and Facilities

Microbiology research labs provide an opportunity for undergraduates to gain hands-on lab experience. As early as freshman year, students can work side-by-side with faculty members and grad students on a broad range of research projects. We work closely with the Office of Undergraduate Research to find opportunities for students. Exposure to research via a seminar or 'independent study' is an important part of our program.

The Department of Biological Sciences at UWM houses state-of-the-art facilities and resources for studying basic cell biology, microbiology, molecular biology, genomics, ecology and evolutionary sciences.

The Biotechnology Facility is available to support research in cell biology, biochemistry, molecular biology, and large-scale production of secondary metabolites.

Our Microscopy Facility includes a scanning electron microscope and a transmission electron microscope, and confocal microscope systems with multiple laser lines.

### Some of our Research Areas

- Environmental Microbiology
- Immunology
- Bacterial Pathogenesis
- Symbiosis and Host-Microbe Interactions
- Regulation of Cellular Processes
- Antimicrobial drug development
- Protein Secretion
- Aquatic Microbial Ecology
- Yeast Genetics
- Nitrogen Fixation

