



# Microbiology

COLLEGE OF SCIENCE AND HEALTH

## Undergraduate Programs

### MAJORS:

- Microbiology
- Microbiology with concentrations available in:
  - Biomedical Science
  - Environmental Science
  - Business

### MINOR:

- Microbiology

## Professional Associations

The Department of Microbiology has an active Microbiology Club that is an official affiliate of the American Society for Microbiology, the oldest and largest single life science membership organization in the world. The Club sponsors various activities related to microbiology including field trips to organizations that employ microbiologists, trips to regional and national microbiology conferences, and sponsors seminars presented by renowned microbiologists and alumni. Students are also encouraged to become student members of the American Society for Microbiology.

## Department Overview

Microbiology is the study of microscopic organisms, their activities, and applications. Although small in size, microorganisms (or microbes) play an enormous role in many areas of society including human health and disease; food, pharmaceutical and biotechnology industries; agriculture and the environment. As a result of the widespread importance and application of microbiology, career opportunities are almost limitless. The Department of Microbiology, located in Cowley Hall, supports undergraduate and graduate programs in microbiology. The microbiology major has been in existence since 1984 and the program has been recognized by the University of Wisconsin System as a Center of Excellence since 1988. The program is nationally known for excellence in undergraduate education and emphasizes laboratory competence in microbiology and related disciplines. A microbiology major provides a foundation for the abundant employment opportunities in microbiology and provides excellent preparation for graduate school and professional schools such as medical school.

The curriculum is based on the recommendations from the American Society for Microbiology, and is designed to ensure that graduates gain excellent, state-of-the-art experience in microbiology. After completing a core of microbiology courses, students may choose electives that allow them to specialize. A large number of electives are available in areas of virology, parasitology, mycology, molecular biology, bioinformatics, food and industrial microbiology, environmental microbiology, plant microbiology, and research. Students may also elect a biomedical, environmental science, or business concentration, each with slightly different curricula. A particular emphasis of the UWL microbiology major is laboratory competence. Faculty have received more than one million dollars in educational grants to ensure that teaching laboratories contain the latest equipment. During the over 700 hours of laboratory instruction they receive, students gain confidence using this equipment and performing essential microbiology techniques.

View degree requirements:  
[www.uwlax.edu/catalog](http://www.uwlax.edu/catalog)

Microbiology Department  
3002 Cowley Hall  
608.785.6960  
[www.uwlax.edu/microbiology](http://www.uwlax.edu/microbiology)

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### Department Features

#### FACILITIES

The Department of Microbiology has teaching laboratories equipped with state-of-the-art equipment in microbiology, immunology, molecular biology and genetics, microbial physiology, virology, and fermentation microbiology. Laboratories are supported by a microbiology prep room with staff members who prepare materials for teaching laboratories. Additional facilities available include a National Institutes of Health approved animal room, a fermentation room, radiation laboratories, a microscopy room with both a confocal and scanning electron microscope, and individual faculty research laboratories. Some research laboratories are located in the nearby Health Science Center, which has a diagnostic PCR suite and a tissue culture facility.

#### FACULTY

The Department of Microbiology has over ten Ph.D. scientists and lecturers who specialize in many areas of microbiology. In addition, faculty in the Department of Biology teach courses that serve as microbiology electives, and numerous adjunct faculty from area hospitals, federal agencies, and industries also support departmental activities. All faculty have an extraordinary commitment to quality undergraduate education, and provide students with individualized instruction in microbiology. Faculty are also actively involved in developing laboratory curricula to meet ever-changing microbiology techniques.

#### RESEARCH AND INTERNSHIP OPPORTUNITIES

Each faculty member has an active research program and provides undergraduates opportunities to conduct research in any of the following areas:

- Infectious Disease
- Antimicrobial Agents
- Immunology
- Virology
- Microbial Genetics
- Molecular Biology
- Microbial Physiology
- Microbial Ecology
- Food Microbiology
- Environmental Microbiology

In addition, numerous area industries, federal agencies, and hospitals provide internship opportunities for microbiology majors. The adjunct faculty also provide research and internship opportunities for microbiology majors. A goal of the department is to provide each microbiology major with some relevant work experience through either research or employment. Most internships are paid, and students may apply for university grants to obtain funding for supplies, travel, and summer stipends for undergraduate research.

### Career Opportunities

#### ENTRY LEVEL

Career opportunities are abundant in microbiology, and over 95 percent of microbiology graduates interested in employment at the bachelor's level obtain jobs within the discipline. Strong laboratory competency is just one reason our majors are highly sought after. Each year representatives from several regional companies visit the campus, providing future microbiology graduates with opportunities to connect with potential employers. Some of these employment opportunities include:

- Clinical Microbiologist
- Environmental Microbiologist
- Food and Dairy Microbiologist
- Fermentation Microbiologist
- Immunologist
- Research and Development Microbiologist
- Pharmaceutical Sales Person
- Public Health Microbiologist
- Research Technician

#### FURTHER EDUCATION

Microbiology is an excellent major to prepare students for graduate or professional school:

- Graduate study in microbiology, biochemistry, epidemiology, immunology, and molecular biology
- Medical School
- Dental School
- Pharmacy School
- Physician Assistant Programs
- Veterinary School

### Occupational Outlook

Earning a degree in Microbiology will continue to provide excellent career opportunities. Microbes have numerous applications in a variety of food, beverage, pharmaceutical, and environmental industries. In addition, the continued need to better understand, diagnose, treat and prevent infectious diseases fosters an ever-growing demand for medical microbiologists. We have only begun to understand the complex diversity and utility of microbes. Using recent advancements in technology, scientists continue to discover new microbes with a wide variety of potential applications, suggesting that the future opportunities in microbiology are almost limitless.