

MICROBIOLOGY (MICR)

Degrees Offered: Ph.D., M.S.

This program is offered in Durham.

The Department of Molecular, Cellular, and Biomedical Science offers a Doctor of Philosophy (Ph.D.) degree and a Master of Science (M.S.) degree in Microbiology. Graduate students in microbiology are typically supported by teaching or research assistantships, as well as by competitive internal and external fellowship programs. For more information about the program, including admission and degree requirements, please contact the Department of Molecular, Cellular, and Biomedical Sciences at mcbs.dept@unh.edu.

Distinctive Features of the Program

Research opportunities are available in many cutting-edge microbiology research areas. Incoming students have the opportunity for laboratory rotations with Microbiology program faculty in those cases where a thesis advisor has not been identified or where exposure to a variety of experimental approaches is advantageous.

The Graduate Program in Microbiology offers:

- Outstanding research training in a broad range of areas, including: host-microbe interactions, environmental microbiology, microbial ecology, virology, immunology, parasitology, signal transduction, evolution, genetics, epigenetics, and genomics.
- Weekly seminar series that includes both distinguished invited speakers and graduate student research presentations.
- Opportunities to gain teaching and mentoring experiences with undergraduate students in the biological sciences.
- Strong track record for graduates attaining careers in academia, research institutes, biotechnology and pharmaceutical companies, and state and federal governmental agencies.

Admission Requirements

Applicants are expected to have had adequate preparation in the biological and physical sciences. This typically includes general and organic chemistry, physics, one semester of calculus, a year of general biology, a semester or more of biochemistry, and general microbiology. Formal courses in quantitative analysis and statistics are recommended. Applicants with deficiencies in these background courses who are admitted to the program may be required to complete appropriate coursework without graduate credit. Applicants must submit a personal statement and three letters of recommendation. The personal statement should specify the applicant's motivation for pursuing an advanced degree, research interests, and names of potential faculty mentors. Applicants from non-English-speaking countries must submit current TOEFL scores in addition to the items listed above. Each applicant to the graduate program must be sponsored by a Microbiology graduate program faculty. A mutual decision for assignment to a graduate research advisor is expected before the second semester of study.

<https://colsa.unh.edu/molecular-cellular-biomedical-sciences>

Programs

- [Microbiology \(Ph.D.\)](#)
- [Microbiology \(M.S.\)](#)

Courses

MICR 805 - Immunology

Credits: 3

An introduction to the fundamental mechanisms of immune function. Topics include the cells and organs of the immune system, humoral and cellular immune responses, the generation of immune cells, and how immune cells fight various infectious pathogens. One semester of cell biology recommended.

Grade Mode: Letter Grading

MICR 806 - Virology

Credits: 3

Principles of animal and selected plant and bacterial virology in relation to infection and disease. Emphasizes the molecular biology of viruses, viral replication, isolation, propagation, assay, pathogenesis, diagnosis, detection, epidemiology, and control. Completion of introductory microbiology and lab recommended prior to taking this course.

Grade Mode: Letter Grading

MICR 808 - Virology Laboratory

Credits: 2

Principles of animal and selected plant and bacterial virology in relation to infection and disease. Emphasizes the molecular biology of viruses, viral replication, isolation, propagation, assay, pathogenesis, diagnosis, detection, epidemiology, and control.

Grade Mode: Letter Grading

Special Fee: Yes

MICR 815 - Immunology Laboratory

Credits: 2

This applied immunology laboratory course highlights both historic and current methodologies important for elucidation and diagnosis of immune function. Techniques used to study phagocytosis, antibody production, immunodiffusion, and T-cell function will be introduced. Applications of the antibody technologies to other scientific disciplines (ELISA, immunofluorescence microscopy, immunoblotting, etc.) will also be covered. Introductory microbiology and microbiology lab recommended.

Co-requisite: MICR 805

Grade Mode: Letter Grading

Special Fee: Yes

MICR 835 - Molecular and Cellular Parasitology

Credits: 4

Parasites continue to present a major challenge to public health. Despite their significant impact on human health, many aspects of the molecular and cellular biology of these diverse organisms remain unknown. This course explores the latest research on these fascinating organisms through analysis and discussion of original research papers focusing on three major human parasites. Introductory microbiology and microbiology lab and one semester of genetics and one semester of parasitology recommended.

Grade Mode: Letter Grading

Faculty

Molecular, Cellular and Biomedical Sciences Faculty