

# DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

The Department of Microbiology and Immunology is one of the basic science departments of the UNC School of Medicine. Although the department participates actively in the undergraduate curriculum in biology and several of its courses are open to undergraduate students, the department does not offer an undergraduate major in microbiology.

MCRO 251 Introductory Medical Microbiology is an undergraduate course, including both lecture and laboratory sessions, which is specifically designed to serve as the required prerequisite for students applying to physician assistant, pharmacy, or nursing programs, although other students with the required science background may take the course. Most of the other courses offered by the department are available to highly motivated undergraduate students with the necessary preparation, although it is important for such students to consult the course instructor before registering.

## Graduate Programs

- Ph.D. in Microbiology and Immunology (<https://catalog.unc.edu/graduate/schools-departments/microbiology-immunology/>)

## MCRO–Microbiology Undergraduate-level Courses

### MCRO 251. Introductory Medical Microbiology. 4 Credits.

Required preparation, one semester of a basic undergraduate science class. An introductory course in microbiology that focuses on the structure, biology, and genetics of microbes in relation to human disease and the immune system. For students planning careers in pharmacy, nursing, dental hygiene, and related fields. A laboratory is required.

#### Rules & Requirements

**Grading Status:** Letter grade.

### MCRO 291. Undergraduate Learning Apprentice. 1 Credits.

Permission required. Experience includes preparations, demonstrations, assistance, and attendance at weekly meetings. Apprentices will not be involved in any aspects of grading.

#### Rules & Requirements

 **IDEAs in Action Gen Ed:** HI-LEARNTA.

**Making Connections Gen Ed:** EE - Undergraduate Learning Assistant, ULA.

**Requisites:** Prerequisite, MCRO 251; a grade of B or better in MCRO 251 is required.

**Repeat Rules:** May be repeated for credit. 3 total credits. 3 total completions.

**Grading Status:** Pass/Fail.

### MCRO 292. Undergraduate Learning Assistant. 2 Credits.

Permission required. Experience includes preparations, demonstrations, assistance, and attendance in weekly meetings.

#### Rules & Requirements

 **IDEAs in Action Gen Ed:** HI-LEARNTA.

**Making Connections Gen Ed:** EE - Undergraduate Learning Assistant, ULA.

**Requisites:** Prerequisite, MCRO 251; a grade of B or better in MCRO 251 is required.

**Repeat Rules:** May be repeated for credit. 4 total credits. 2 total completions.

**Grading Status:** Pass/Fail.

## Advanced Undergraduate and Graduate-level Courses

### MCRO 449. Introduction to Immunology. 3 Credits.

This course provides a general overview of the evolution, organization, and function of the immune system. Instruction will be inquiry-based with extensive use of informational and instructional technology tools.

#### Rules & Requirements

**Requisites:** Prerequisites, BIOL 205; or BIOL 103, BIOL 104, and BIOL 240; or permission of the instructor for students lacking the prerequisites.

**Grading Status:** Letter grade.

**Same as:** BIOL 449.

### MCRO 614. Immunobiology. 3 Credits.

A strong background in molecular biology, eukaryotic genetics, and biochemistry is required. Advanced survey course with topics that include molecular recognition, genetic mechanisms of host resistance, development of cells and cell interactions; hypersensitivity, autoimmunity, and resistance to infection. Course material from textbook and primary literature.

#### Rules & Requirements

**Grading Status:** Letter grade.

### MCRO 630. Virology. 3 Credits.

Required preparation, coursework in molecular biology and cell biology. Current concepts of the chemistry, structure, replication, genetics, and the natural history of animal viruses and their host cells.

#### Rules & Requirements

**Grading Status:** Letter grade.

### MCRO 631. Advanced Molecular Biology. 4 Credits.

This course explores cutting edge research in molecular biology – the investigation at molecule-scale of the mechanisms behind life. We briefly review core-principles in molecular biology, then investigate more recent research that extends or overturns these core principles.

#### Rules & Requirements

**Requisites:** Prerequisites, BIOL 202, or BIOL 220, or CHEM 430, and permission of the course director.

**Grading Status:** Letter grade.

**Same as:** GNET 631, BIOC 631, BIOL 631.

**MCRO 632. Advanced Molecular Biology II. 3 Credits.**

Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. The purpose of this course is to provide historical, basic, and current information about the flow and regulation of genetic information from DNA to RNA in a variety of biological systems. Three lecture hours a week.

**Rules & Requirements**

**Grading Status:** Letter grade.

**Same as:** GNET 632, BIOC 632, BIOL 632.

**MCRO 635. Microbial Pathogenesis I. 3 Credits.**

Permission of the instructor. Required preparation, coursework in molecular biology and genetics. Topics will include aspects of basic bacteriology as well as bacterial and fungal pathogens and mechanisms of disease.

**Rules & Requirements**

**Grading Status:** Letter grade.

**MCRO 640. Microbial Pathogenesis II. 3 Credits.**

Permission of the instructor or a fundamental understanding of molecular virology and immunology. Molecular pathogenesis, with a primary focus on viral pathogens. Additional topics include vaccines and genetics of host-pathogen interactions.

**Rules & Requirements**

**Grading Status:** Letter grade.

**MCRO 690. Special Topics in Microbiology or Immunology. 1-15 Credits.**

Permission of the department except for department majors. Designed to introduce the student to research methods. Minor investigative problems are conducted with advice and guidance of the staff. Hours and credit to be arranged, any term. May be repeated for credit two or more semesters.

**Rules & Requirements**

**Repeat Rules:** May be repeated for credit; may be repeated in the same term for different topics; 15 total credits. 5 total completions.

**Grading Status:** Letter grade.

## Contact Information

**Department of Microbiology and Immunology**

Visit Program Website (<http://www.med.unc.edu/microimm/>)

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**Chair**

Craig E. Cameron