

# MICROBIOLOGY (MICR)

## Courses

### **MICR 515. Introduction to Bioinformatics and Genomics. 2 Units.**

Introduces computer-aided analysis of macromolecules and the study of genes and their products on the level of whole genomes. Cross-listing: IBGS 515.

### **MICR 521. Medical Microbiology. 6 Units.**

Systematically studies bacteria, fungi, viruses, and animal parasites of medical importance; pathogenic mechanisms; methods of identification and prevention; and clinical correlation.

### **MICR 525. Journal Club III. 1 Unit.**

Provides students with the opportunity to survey current research literature in a specialized topic.

### **MICR 530. Basic Immunology. 4 Units.**

Introduces selected topics of modern immunology, with emphasis on understanding key paradigms.

### **MICR 536. Virology. 3 Units.**

Presents basic molecular knowledge on virology. Discusses topics such as viral transformation and oncogenesis, emerging viruses, and engineering viruses for research and medicine. Prerequisite: IBGS 511.

### **MICR 537. Selected Topics in Molecular Biology. 1-3 Units.**

Critically evaluates current progress in a specific research area of molecular biology, including recently published papers and unpublished manuscripts. May be repeated for additional credit.

### **MICR 540. Physiology and Molecular Genetics of Microbes. 3 Units.**

Advanced graduate course covering various hot topics in both microbial physiology and molecular genetics—such as diversity of microbes on earth, engineering new metabolic pathways, mechanisms of gene regulation and gene transfer, and comparative genomics.

### **MICR 547. Medical Microbiology. 4.5 Units.**

Covers basic biology of medically important microbial pathogens and mechanisms of their disease pathologies in the context of organ systems. Addresses pathologic mechanisms, signs and symptoms of major infectious diseases, developing differential diagnoses, and treatment and prevention of these diseases.

### **MICR 570. Mechanisms of Microbial Pathogenesis. 3 Units.**

In-depth exploration of molecular mechanisms of pathogenesis and host response for selected bacteria, viruses, and parasites. Topics include endotoxins, exotoxins, tools to identify genes crucial to virulence, and a discussion of selected paradigms of microbe-host interaction. Vaccine development serves as a unifying theme linking the host-pathogen interactions. Focuses on evidence for current concepts, using primary journal articles.

### **MICR 580. Current topics in Immunology. 1-4 Units.**

Provides a mechanism for teaching course content not currently in the catalog. May be repeated for additional credit when the topic presented is different.

### **MICR 624. Special Problems in Microbiology. 1-4 Units.**

Designed primarily for students enrolled in a coursework M.S. degree program who elect to work on a research problem.

### **MICR 625. Independent Study in Microbiology Literature. 1-4 Units.**

Explores in depth a specific topic, selected in consultation with the mentor, such as the antecedents for theses or dissertation research. (Formal proposal for the scope and evaluation of the independent study must be approved by the faculty prior to enrollment in this course. Does not satisfy an elective requirement in the microbiology and molecular genetics program.)

### **MICR 626. Special Topics in Microbiology. 2-4 Units.**

Critically evaluates current progress in a specific research area, including recently published papers and unpublished manuscripts. (Each course taught by a resident or a visiting scientist who is a recognized authority in the research area under discussion. Students may register for multiple courses under this designation.)

### **MICR 697. Research. 1-7 Units.**

### **MICR 698. Thesis. 1-3 Units.**

### **MICR 699. Dissertation. 2-5 Units.**

### **MICR 891. Microbiology Elective. 1.5-12 Units.**

Offers fourth-year medical students the opportunity to explore various areas of microbiology, including research.