Microbiology (MICR)

MICR 2060  Microbiology for Health Professions 3:3:0  Fall, Spring, Summer
* Prerequisite(s): BIOL 1610 and (ENGL 1010 or ENGH 1005) with a C- or higher in each. CHEM 1110 or higher is highly recommended
* Corequisite(s): MICR 2065
Studies the history of microbiology. Explores bacterial, fungal, parasitic, and viral diseases and their causes. Discusses the classification, physiology, genetics, and physical and chemical control of microbes. Emphasizes clinical applications. Is designed for those planning a career in the health professions such as nursing, dental hygiene, medicine, pharmacy, and dentistry. Includes weekly laboratory as a corequisite.

MICR 2065  Microbiology for Health Professions Laboratory 1:0:2  Fall, Spring, Summer
* Prerequisite(s): (BIOL 1010 or BIOL 1610) and (ENGL 1010 or ENGH 1005). CHEM 1110 highly recommended
* Corequisite(s): MICR 2060
Studies the history of microbiology. Explores bacterial, fungal, parasitic, and viral diseases and their causes. Discusses the classification, physiology, genetics, and physical and chemical control of microbes. Emphasizes clinical applications. Is designed for those planning a career in the health professions such as nursing, dental hygiene, medicine, pharmacy, and dentistry. Includes weekly laboratory. Course Lab fee of $44 for materials, lab applies.

MICR 3200  Emerging and Re Emerging Diseases and Zoonoses 3:3:0  Fall Even Year
* Prerequisite(s): MICR 2060 or MICR 3450 with a C- or higher in each and University Advanced Standing
Utilizes the most current infectious disease entities as examples for new (emerging) or old (re-emerging) diseases currently affecting mankind. Discusses zoonotic diseases (those transmissible from animals to humans and vice-versa) in detail. Emphasizes the underlying mechanisms of disease, and includes fundamental aspects of virology, bacteriology, and parasitology. Covers fundamental concepts in epidemiology, how the public health system deals with these diseases once they have been identified and instances where the public health system has failed in controlling these diseases along with the reasons for these failures. Investigates historical aspects of infectious diseases.

MICR 3450  General Microbiology 3:3:0  Fall, Spring
* Prerequisite(s): BIOL 3400 with a C- or higher and University Advanced Standing; BIOL 3600 recommended
* Corequisite(s): MICR 3455
Covers taxonomy, physiology and genetics of bacteria, archaea, viruses and eukaryotic microbes. Introduces industrial microbiology, biotechnology, and immunology and the biochemical basis of infectious diseases. Is designed for biology majors who desire an in-depth coverage of microbiology.

MICR 3455  General Microbiology Laboratory 1:0:2  Fall
* Prerequisite(s): BIOL 3400 and University Advanced Standing; BIOL 3600 recommended
* Corequisite(s): MICR 3450
Hands-on laboratory procedures that studies the methods of taxonomy and distinguishes physiology and genetics of prokaryotes (bacteria, Archaea), viruses and eukaryotic pathogens. Introduces methods used in industrial microbiology, biotechnology, and immunology and the biochemical basis of infectious diseases. Designed for biology majors who desire an in-depth coverage of microbiology. Course Lab fee of $60 for materials, lab applies.

MICR 4100 (Cross-listed with: ZOOL 4100)  Parasitology 4:3:3  On Sufficient Demand
* Prerequisite(s): (BIOL 1620 or MICR 2060) with a C- or higher and University Advanced Standing
Introduces the study of parasites. Emphasizes the biology of principal groups of parasites affecting humans, livestock, and other animals, including their medical economic, and ecological significance. Emphasizes parasites causing zoonotic diseases. Includes weekly laboratory experience involving identification of parasites. Course Lab fee of $25 applies.

MICR 4200  Microbiomes 3:3:0  Fall Even Year
* Prerequisite(s): BIOL 1620, BIOL 3500, and University Advanced Standing
Explores the historical background, current knowledge and ongoing research on microbiomes and their role in evolution of biodiversity, ecology of diverse species and communities, behavior of individuals, and impact on host development and physiology.

MICR 4300  Pathogenic Microbiology 4:3:2  Spring Even Year
* Prerequisite(s): MICR 3450 or MICR 2060 and University Advanced Standing
Discusses fundamentals of microbial pathogenesis, replication, infection, and immune mechanisms. Explores the biology of bacterial, viral, fungal, protozoan, and helmhth pathogens. Discusses identification, control, and treatments of various microbial pathogens. Includes weekly laboratory. Course Lab fee of $25 applies.

MICR 4450 (Cross-listed with: BIOL 4450)  Immunology 3:3:0  On Sufficient Demand
* Prerequisite(s): (MICR 2060 or MICR 3450 or ZOOL 2420) and University Advanced Standing
* Corequisite(s): BIOL 4455
Explores the macromolecules, cells and organs involved in innate and adaptive immunity. Examines the development of lymphocyte repertoire, positive and negative selection of lymphocytes and the production of effector lymphocytes. Studies properties of antigens, vaccines, antigen presenting cells and the mechanisms of antigen presentation. Reviews major immunological methods for medical diagnostics and other applications. Examines causes and consequences of autoimmune and lymphoproliferative diseases and immunodeficiencies. Probes how immune response could be manipulated for cancer therapy and transplantation medicine.

MICR 4500  Virology 3:3:0  Fall
* Prerequisite(s): BIOL 3400 and (MICR 3450 or MICR 2060) and University Advanced Standing; BIOL 3600 recommended
Examines the fundamentals of virology. Covers viral structure, biochemistry, genomics, viral multiplication cycles in prokaryotic and eukaryotic cells, and techniques used in viral studies. Discusses viral diseases, transmission, therapy, evolution, and epidemiology.

MICR 490R  Special Topics in Microbiology 1 to 4:1 to 4:1 to 8  On Sufficient Demand
* Prerequisite(s): BIOL 1620 and University Advanced Standing
Explores and examines special topics relating to the field of microbiology. Emphasizes areas of rapid growth in microbiology or current importance to society. May be repeated for a total of 9 credits toward graduation.