MICROBIOLOGY (MBIO)

MBIO 101 Introduction to the Microbiology Major  
**Notes:** Letter grade only.  
**Description:** Introduction to the Microbiology major by providing an overview of Microbiology as a field of science, possible career paths, and opportunities available to Microbiology majors.  
**Credit Hours:** 1  
**Max credits per semester:** 1  
**Max credits per degree:** 1  
**Grading Option:** Graded  
**Offered:** FALL

MBIO 420 Molecular Genetics  
**Crosslisted with:** BIOS 420, BIOS 820, VBMS 820  
**Prerequisites:** BIOS 206 and Senior standing  
**Description:** Molecular basis of genetics. Gene structure and regulation, transposable elements, chromosome structure, DNA replication, and repair mechanisms and recombination.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  
**Prerequisite for:** AGRO 963, HORT 963, PLPT 963; BIOS 945; BIOS 964, VBMS 964; FDST 908B  
**ACE:** ACE 10 Integrated Product

MBIO 421 Microbial Diversity  
**Crosslisted with:** BIOS 421, BIOS 821  
**Prerequisites:** BIOS 206 and BIOS 312 and Senior standing  
**Description:** Diversity of microbial cell composition, structure, and function enabling movement, metabolism, symbiosis, and adaptation using bacterial, fungal, algal, and viral examples. A physiological, biochemical and molecular approach used throughout.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  
**ACE:** ACE 10 Integrated Product

MBIO 440 Microbial Physiology  
**Crosslisted with:** BIOS 440, BIOS 840, VBMS 840  
**Prerequisites:** BIOS 312; BIOS 313 or BIOS 314.  
**Description:** Molecular approaches to the study of prokaryotic cell structure and physiology, including growth, cell division, metabolism, and alternative microbial life styles.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option

MBIO 443 Immunology  
**Crosslisted with:** BIOS 443, BIOS 843, VBMS 843  
**Prerequisites:** BIOS 206; CHEM 251 or CHEM 255 or CHEM 261.  
**Description:** Fundamental consideration of cellular and humoral mechanisms of immunity, the structure and function of immunoglobulins, antigen-antibody interactions; hypersensitivity; transplantation and tumor immunity; immune and autoimmune disorders.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  
**Prerequisite for:** BIOS 966, VBMS 966; VBMS 852; VBMS 908; VBMS 910; VBMS 948; VBMS 949

MBIO 455 Microbiology of Fermented Foods  
**Crosslisted with:** FDST 455, FDST 855  
**Prerequisites:** FDST 405/805  
**Notes:** On-campus students must also register for FDST 455L/855L.  
**Description:** Physiology, biochemistry, and genetics of microorganisms important in food fermentation. How microorganisms are used in fermentation and the effects of processing and manufacturing conditions on production of fermented foods.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Grading Option:** Graded with Option  
**Offered:** SPRING

MBIO 455L Microbiology of Fermented Foods Laboratory  
**Crosslisted with:** FDST 455L, FDST 855L  
**Prerequisites:** FDST 405/805 and parallel FDST 455/855/MBIO 455  
**Description:** Experiments involving the microorganisms and fermentation of foods and beverages.  
**Credit Hours:** 1  
**Max credits per semester:** 1  
**Max credits per degree:** 1  
**Grading Option:** Graded with Option  
**Offered:** SPRING

MBIO 498 Independent Research  
**Prerequisites:** LIFE 120 and 121 and permission  
**Notes:** Letter grade only. Before registering, arrangements must be made with a microbiology faculty member to reach an agreement on the scope and to determine the amount of credit for the project.  
**Description:** Independent study and laboratory or field investigation of a specific problem.  
**Credit Hours:** 1-8  
**Min credits per semester:** 1  
**Max credits per semester:** 8  
**Max credits per degree:** 8  
**Grading Option:** Graded