

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 418 Microbial Genetics & Genomics

Crosslisted with: PLPT 418, PLPT 818

Prerequisites: BIOS 201 or PLAS 215.

Notes: BIOS 312 is recommended.

Description: Inheritance, exchange, and regulation of genes in prokaryotic microorganisms: gene structure and function; gene transfer and the elements (plasmids, phages, and transposons) involved; DNA mutations, repair, and genetic analysis; genome sequencing, microbial genome databases, and global gene expression analysis.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

Prerequisite for: PLPT 801, AGRO 801, HORT 801

ACE: ACE 10 Integrated Product

MBIO 420 Molecular Genetics

Crosslisted with: BIOS 420, BIOS 820, VBMS 820

Prerequisites: BIOS 201 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; PLPT 801, AGRO 801, HORT 801

ACE: ACE 10 Integrated Product

MBIO 421 Microbial Diversity

Crosslisted with: BIOS 421, BIOS 821

Prerequisites: BIOS 201 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, VBMS 440

Prerequisites: BIOS 312; 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

Course and Laboratory Fee: \$20

MBIO 443 Immunology

Crosslisted with: BIOS 443, BIOS 843, VBMS 843, VBMS 443

Prerequisites: BIOS 201; CHEM 251 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: VBMS 908; VBMS 910; VBMS 948; VBMS 949

MBIO 455 Microbiology of Fermented Foods

Crosslisted with: FDST 455, FDST 855

Prerequisites: BIOS 312

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: 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

Course and Laboratory Fee: \$50

MBIO 498 Independent Research

Prerequisites: Permission; BIOS 314 or parallel

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: 1-6

Min credits per semester: 1

Max credits per semester: 6

Max credits per degree: 12

Grading Option: Graded

Experiential Learning: Research