MICROBIOLOGICAL, MOLECULAR, AND BIOMEDICAL SCIENCES (MMBS)

MMBS 106 Making Sense of the Micro-biotic-me
(3 Credits, Fall/Spring/Summer)
Dramatic changes in socioeconomic status, cultural traditions, population growth, and agriculture are affecting the human microbiome worldwide. Understanding how our diet, nutritional status, and cultural behavior influence the composition and dynamic operations of our gut microbial communities, and the innate and adaptive arms of our immune system, represents an area of scientific need, opportunity, and challenge. This course provides an opportunity for students to become familiar with the concept that humans contain more than just an organized assemblage of mammalian cells. How resident bacteria interact with one another and with transient (often pathogenic) bacterial species is important to understand because these interactions can promote health or potentially aid the transition towards disease. Students will study microbial communities and ecology of the human body and cultural driving forces promoting the transition from those communities associated with health to disease-causing communities. *(This CWI course meets the institutional competency requirements in Global Perspectives.). (3 lecture hours, 0 lab hours, 3 credits)*

MMBS 111 Introductory Microbiology
(3 Credits, Fall/Spring)
This course introduction to the fundamental principles of microbial systems and the information generated in microbiology that has enriched all segments of biology. The course has a public health/infectious disease emphasis; however, the many dimensions of the microbial world will be discussed and will include the chemistry of macromolecules, subcellular organization and functions, basic information about life cycles, cell division, and genetics. In addition, control of microbial growth in the environment, basic epidemiology and immunology, and contemporary topics in microbiology will be covered. PRE/COREQ: MMBS 111L. *(This CWI course meets Idaho State Board of Education GEM competency requirements for GEM 4 - Scientific Ways of Knowing.). (3 lecture hours, 0 lab hours, 3 credits)*

MMBS 111L Introductory Microbiology Lab
(1 Credit, Fall/Spring/Summer)
This course fulfills the laboratory component of the GEM 4 Scientific Ways of Knowing requirement. Students will engage with the process of science by making observations, developing questions, performing experiments, using scientific apparatus to collect and analyze data, and communicating the results of scientific work. Additional fee required for lab. PRE/COREQ: MMBS 111. *(This CWI course meets Idaho State Board of Education GEM competency requirements for GEM 4 - Scientific Ways of Knowing.). (0 lecture hours, 3 lab hours, 1 credits)*

MMBS 250 General Microbiology
(3 Credits, Spring)
This course introduces students to the core concepts and competencies important to the study of microbiology. These topics include: microbial evolution; structure of cells and how this relates to function; information flow, exchange, and storage within the cell and within microbial communities; pathways and transformations of energy and matter within the cell and within microbial communities; systems within the cell and within communities; and the impact of microbes on humans and the environment. Scientific thinking skills will be emphasized as a part of learning the foundational concepts and competencies. Concurrent enrollment in MMBS 250L is strongly recommended. PREREQ: BIOL 111, BIOL 111L, CHEM 111, and CHEM 111L with a grade of C or higher. *(3 lecture hours, 0 lab hours, 3 credits)*

MMBS 250L General Microbiology Lab
(1 Credit, Spring)
This lab is designed to teach microbiology skills, including lab safety, aseptic technique, microscope use, staining, and interpreting biochemical tests. Competency in lab safety, aseptic technique, and microscope use will be required for successful completion of the course. Scientific thinking will the emphasized through learning to use the scientific method to design and perform experiments, analyze data generated from the experiments, and effectively communicate the results of the experiments. Concurrent enrollment in MMBS 250 is strongly recommended. PREREQ: BIOL 111, BIOL 111L, CHEM 111, and CHEM 111L with a grade of C or higher. *(0 lecture hours, 3 lab hours, 1 credits)*

MMBS 260 Introduction to Cell Biology
(3 Credits, Varies)
Cell Biology is a study of biological principles with emphasis upon molecular cell biology, membranes, organelles, energy transfers, cell physiology, and molecular genetics. This course is for science majors. Concurrent enrollment in MMBS 260L is strongly recommended. PREREQ: BIOL 111, BIOL 111L, CHEM 111, and CHEM 111L with a grade of C or higher. *(3 lecture hours, 0 lab hours, 3 credits)*

MMBS 260L Introduction to Cell Biology Lab
(1 Credit, Varies)
Cell Biology is a study of biological principles with emphasis upon molecular cell biology, membranes, organelles, energy transfers, cell physiology, and molecular genetics. This course is for science majors. As the laboratory counterpart to Cell Biology lecture, students will participate in a research project designed to introduce them to a variety of molecular biological techniques. Concurrent enrollment in MMBS 260 is strongly recommended. PREREQ: BIOL 111, BIOL 111L, CHEM 111, and CHEM 111L with a grade of C or higher. *(0 lecture hours, 3 lab hours, 1 credits)*

MMBS 270 Introduction to Pharmacology
(3 Credits, Fall)
This class is designed for students who are interested in an introduction to the field of pharmacology. This course will cover the basic pharmacological principles, mechanisms of drug action, and various classes of drugs. It is recommended students complete Human Anatomy and Physiology I and II (BIOL 227 and BIOL 228) prior to registering for this course. PREREQ: BIOL 111, BIOL 111L, CHEM 111, and CHEM 111L with a grade of C or higher. *(3 lecture hours, 0 lab hours, 3 credits)*

MMBS 280 Genetics
(3 Credits, Spring)
This course serves as the capstone course for the AS degree in Biology - Microbiological, Molecular, and Biomedical Sciences and can serve as the capstone course for the AS degree in General Biology. This course introduces students to the basic concepts of genetics and heredity. Individual topics include Mendelian inheritance, genetic linkage, recombination and gene mapping, chromosome structure and function, gene expression and regulation, genetic mutation, biotechnology, cell-cycle regulation, the genetics of cancer, and more. This course will also explore the onset of genetic variability and how genetic mutations can lead to environmental adaptations and evolution. Concurrent enrollment in MMBS 280L is strongly recommended. PREREQ: BIOL 112 and BIOL 112L with a grade of C or higher, and CHEM 102 or CHEM 111 with a grade of C or higher. *(3 lecture hours, 0 lab hours, 3 credits)*

MMBS 280L Genetics Lab
(1 Credit, Spring)
This course serves as the capstone course for the AS degree in Biology - Microbiological, Molecular, and Biomedical Sciences and can serve as the capstone course for the AS degree in General Biology. This course provides an overview of genetics. Students will participate in a research project designed to introduce them to a variety of molecular biological and genetic techniques. Students will collect and analyze data, evaluate results, and present their findings to the class and/or at a conference. Concurrent enrollment in MMBS 280 is strongly recommended. PREREQ: BIOL 112 and BIOL 112L with a grade of C or higher, and CHEM 102 or CHEM 111 with a grade of C or higher. *(0 lecture hours, 3 lab hours, 1 credits)*

Refer to How to Read Course Descriptions for an explanation of elements found in the course descriptions above.