BIOLOGY (BIO)

BIO 101. General Biology I. (4 Credits)
Focuses on biological processes with a chemical foundation, including macromolecules, cellular structure, metabolism, and genetics in an evolutionary context. Explores the core concepts of evolution; structure and function; information flow, storage and exchange; pathways and transformations of energy and matter; and systems biology. Emphasizes the process of science, interdisciplinary approach, and relevance of biology to society. Part I of a two-course sequence. Assignments require college-level reading fluency, coherent written communication, and basic mathematical skills. This is a Passport and UCGS transfer course. Credit toward graduation cannot be awarded for both BIO 101 and BIO 106. Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week. Prerequisites: Eligible for MTH 154.

BIO 102. General Biology II. (4 Credits)
Focuses on biological processes with a chemical foundation, including macromolecules, cellular structure, metabolism, and genetics in an evolutionary context. Explores the core concepts of evolution; structure and function; information flow, storage and exchange; pathways and transformations of energy and matter; and systems biology. Emphasizes the process of science, interdisciplinary approach, and relevance of biology to society. Part II of a two-course sequence. This is a UCGS transfer course. Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week. Prerequisite: BIO 101 or departmental permission.

BIO 106. Life Science. (4 Credits)
Surveys the basic concepts of life science. Engages in the scientific process by developing hypotheses, gathering data, and analyzing results. Explores topics within the context of the societal implications of science. Intended for students not majoring in science. Assignments require college-level reading fluency, coherent written communication, and basic mathematical skills. This is a Passport and UCGS transfer course. Credit toward graduation cannot be awarded for both BIO 101 and BIO 106. Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week.

BIO 141. Human Anatomy and Physiology I. (4 Credits)
Presents the study of anatomy & physiology including anatomical terminology, homeostasis, histology, integumentary system, skeletal system, muscular system, and nervous system. Part I of II. Assignments require college-level reading fluency, coherent written communication, and basic mathematical skills. Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Prerequisite: Demonstration of NAS 2 concepts of Chemical Concepts, Cytology, and Inheritance through NAS 2 completion; or BIO 101 completion with a C or better; or BIO 106 completion with a C or better; or assessment; or Anatomy Placement Test Completion with passing score via Canvas course (for latest APT enrollment link, access the testing center page: https://www.brcc.edu/student-support-services/testing-center); or equivalent. Passing NAS-assessment in BRCC testing center satisfies the NAS 2 requirement.

BIO 142. Human Anatomy and Physiology II. (4 Credits)
Continues study of anatomy and physiology including endocrine system, blood and cardiovascular system, lymphatic system and immunity, respiratory system, urinary system, fluid, electrolyte, and acid-base balance, digestive system and nutrient metabolism, reproductive system, and prenatal development. Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week. Prerequisite: Completion of BIO 141 with a grade of C or better.

BIO 145. Basic Human Anatomy and Physiology. (4 Credits)
Surveys human anatomy and physiology. Covers basic chemical concepts, cellular physiology, anatomy and physiology of human organ systems. Assignments require college-level reading fluency, coherent written communication, and basic mathematical skills. Students may not receive credit for both BIO 145 and BIO 141 or BIO 145 and BIO 142. Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week.

BIO 150. Microbiology for Health Sciences. (4 Credits)
Focuses on the general characteristics, cellular structure, and metabolism of microorganisms. Emphasizes microbial relationships with individual and community health. Includes impact of microbes on human health and disease, microbial pathogenicity, identifying and managing infectious diseases and controlling microbial growth, healthcare associated infections and epidemiology. Studies aseptic culturing techniques with hands-on experience in safe microbiology practices. Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week. Prerequisite: BIO 101 or BIO 141; completion of high school chemistry or CHM 101 encouraged.

BIO 205. General Microbiology. (4 Credits)
Explores the structure and function of microorganisms and their relationship to the environment and humans. Emphasizes the various groups of microorganisms, their growth and metabolism, roles in the functioning of ecosystems, genetics, their roles in human health, the use of microbes in industrial applications and biotechnology and methods of microbial control. Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week. Prerequisites: ENG 111, BIO 101, BIO 102, and CHM 111 Corequisite: CHM 112.

BIO 250. Biotechnology Research Methods and Skills. (3 Credits)
Provides students with knowledge and advanced laboratory skills needed for employment in the biotechnology industry. Focuses on use of basic and specialized lab equipment and techniques such as solution chemistry, cell culture, DNA extraction and analysis, and protein extraction and analysis. Emphasis in on lab safety, documentation, quality control, and use of SOPs. Lecture 1 hour per week, Laboratory 6 hours per week. Total 7 hours per week. Prerequisite: BIO 101. Co-requisite is BIO 253.

BIO 253. Biotechnology Concepts. (3 Credits)
Explores the growing field of biotechnology ranging from basic cellular and molecular biology concepts to both basic and advanced laboratory techniques. Emphasizes the application of biotechnology to medicine, agriculture, environmental science, and forensics. Includes discussion of the business, regulatory/legal, ethical, and societal issues of this topic as well as the growing field of bioinformatics. Lecture 3 hours. Total 3 hours per week. Prerequisites: BIO 101 or BIO 173, or instructor permission.

BIO 256. General Genetics. (4 Credits)
Explores the principles of genetics ranging from classical Mendelian inheritance to the most recent advances in the biochemical nature and function of the gene. Includes experimental design and statistical analysis. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week. Prerequisites: BIO 101 & BIO 102 or equivalent.

BIO 270. General Ecology. (4 Credits)
Studies interrelationships between organisms and their natural and cultural environments with emphasis on populations, communities, and ecosystems. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week. Prerequisites: Any two of the following prerequisites: BIO 101, BIO 102, BIO 110, BIO 120.