

BIOLOGY (BIO)

BIO 100 Biological Science (3 Credits)

Study of the general principles and problems of biology, with special emphasis on the human organism, including anatomy, physiology, growth, reproduction, and inheritance. The evolution and diversity among living things are discussed from an ecological perspective.

BIO 100H Honors Biological Science (3 Credits)

Study of the general principles and problems of biology, with special emphasis on the human organism, including anatomy, physiology, growth, reproduction, and inheritance. The evolution and diversity among living things are discussed from an ecological perspective.

BIO 100L Biological Science Lab (1 Credits)

Practical approach to understanding the nature of science. The exercises on cells, tissues, and organ systems are designed to help students understand the human systems.

BIO 105 Human Biology (3 Credits)

Survey of the structure and function of the human body and the human life cycle with particular focus on reproduction, growth, and development.

BIO 105L Human Biology Lab (1 Credits)

Laboratory includes dissection of preserved animals/structures, models and microscopic observations, slide/videotapes, computer-simulated dissections and experiments, and hands-on experiments.

BIO 110 General Biology (3 Credits)

Survey of basic concepts and principles with emphasis at the molecular and cellular levels of biological systems. Includes contemporary, genetics, metabolism, and organ systems of representative plants and animals.

BIO 110H Honors General Biology (3 Credits)

Survey of basic concepts and principles with emphasis at the molecular and cellular levels of biological systems. Includes contemporary genetics, metabolism, and organ systems of representative plants and animals.

BIO 110L General Biology Laboratory (1 Credits)

Survey of basic concepts and principles with emphasis at the molecular and cellular levels of biological systems. Includes contemporary genetics, metabolism, and organ systems of representative plants and animals.

BIO 111 General Biology II (3 Credits)

The course is a comprehensive survey of basic biological concepts and principles with emphasis at the organismal level of biological systems. While kingdom organisms are included, plant/animal structure and function, human anatomy/physiology (human organ systems), and ecosystems are also emphasized.

Prerequisites: Take BIO-110. Take BIO-110L.

BIO 111L General Biology II Laboratory (1 Credits)

The second part of an introductory laboratory course for science majors, designed as a hands-on study of the organismal level of biological systems. Experimental topics in the course include the structure and function of prokaryotes, plants, and animals. The scientific method is emphasized as students collect, analyze, and discuss data relevance to each topic.

BIO 150 Food Security (4 Credits)

Introduction to food security and environmental, sustainability, how it affects us, and , what we can do as individuals to address related, issues.

BIO 163 Microbiology for the Health Sciences (3 Credits)

General survey of microorganisms that cause human diseases. The mechanisms of body defense and immunity to infectious agents are discussed.

BIO 163L Micro for Health Sciences Laboratory (1 Credits)

Study of culture methods, microscopic sterilization, and aseptic techniques.

BIO 164 Biological Sciences/Health Professions (1 Credits)

The course is designed to acquaint the student, with careers in biology and help the students, develop the skills needed to successfully navigate, entry into graduate school, professional school,, and the workforce. The course serves as a platform, to enhance student academic success, career, development and professionalism.

BIO 165 Human Anatomy and Physiology I (3 Credits)

One-year course consisting of an integrated study of the structure and function of the human body. BIO 165 is a lecture series on cells through the four major tissues.

BIO 165L Human Anatomy & Physiology I Lab (1 Credits)

Emphasis on teaching aids such as computed managed instructions and hands-on experience with animal tissues.

Prerequisites: Take BIO-165.

BIO 166 Human Anatomy and Physiology II (3 Credits)

One-year course consisting of an integrated study of the structure and function of the human body. BIO 166 presents lecture topics on the structure and function of organs and organ systems. (Must be taken in sequence with BIO 165.)

BIO 166L Human Anatomy & Physiology II Lab (1 Credits)

Emphasis on teaching aids such as computed managed instructions and hands-on experience with animal tissues.

BIO 260 Integrative Zoology (3 Credits)

Biological concepts of animal life, including morphology, taxonomy, life histories, reproduction and distribution.

Prerequisites: Take BIO-110. Take BIO-110L. Take BIO-111. Take BIO-111L.

BIO 260L Integrative Zoology Laboratory (1 Credits)

Biological concepts of animal life, including morphology, taxonomy, life histories, reproduction, and distribution.

Prerequisites: Take BIO-110. Take BIO-110L. Take BIO-111. Take BIO-111L.,Take BIO-260., Take BIO-260.

BIO 260R Integrative Zoology Lab (2 Credits)

Biological concepts of animal life, including, morphology, taxonomy, life histories,, reproduction, & distribution with a strong focus, on research and experiential learning in the field, of zoology.

BIO 261 General Botany (3 Credits)

Introductory study of the basic principles of botany, including comparative studies on morphology, physiology, genetics, ecology, and economic uses of major plants.

Prerequisites: Take BIO-110 . Take BIO-110L. Take BIO-111. Take BIO-111L.

BIO 261L General Botany Laboratory (1 Credits)

Introductory study of the basic principles of botany, including comparative studies on morphology, physiology, genetics, ecology, and economic uses of major plants.

Prerequisites: Take BIO-110. Take BIO-111. Take BIO-111L.

BIO 261R General Botany Lab (2 Credits)

Study of the basic principles of botany, including, comparative studies on morphology, physiology,, genetics, ecology, and economic uses of major, plants, with strong focus on research in botany

Prerequisites: Take BIO-110 . Take BIO-110L. Take BIO-111. Take BIO-111L.

BIO 263 Vertebrate Embryology (3 Credits)

Study of the mechanics of development, including the origin of gametes, fertilization, organogenesis, and morphogenesis of early development of the frog, chick, pig, and man.

Prerequisites: Take BIO-260. Take BIO-260L.

BIO 263L Vertebrate Embryology Lab (1 Credits)

Laboratory study of the mechanics of development including the origin of gametes, fertilization organogenesis, and morphogenesis of early development of the frog, chick, pig, and man.

BIO 264 Concepts of Developmental Biology (3 Credits)

Study of the principles of development exemplified by experimental studies in model organisms, including invertebrates, vertebrates, and plants. Examines common themes pre-birth, and continued development and regeneration post-birth.

Prerequisites: Take BIO-260. Take BIO-260L.

BIO 264L Concepts of Developmental Biology Lab (1 Credits)

Laboratory study of the principles of development, using experimental studies in model organisms, including invertebrates, vertebrates, and plants, to examine embryonic, post-embryonic and regenerative processes.

BIO 270 Comparative Vertebrate Anatomy and Physiology (3 Credits)

Study of the classification, morphology, and anatomy of vertebrates, including the functions of their organs and organ systems.

Prerequisites: Take BIO-260. Take BIO-260L.

BIO 270L Comparative Anatomy & Physiology Lab (1 Credits)

Study of the classification, morphology, and anatomy of vertebrates, including the functions of their organs and organ systems.

BIO 271 Ecology (3 Credits)

Composition and distribution of biotic communities, emphasizing interrelationships of organisms and their physical environment with application to current environmental problems.

Prerequisites: Take BIO-260. Take BIO-260L. Take BIO-261. Take BIO-261L.

BIO 271L Ecology Laboratory (1 Credits)

Composition and distribution of biotic communities emphasizing interrelationships of organisms and their physical environment with application to current environmental problems.

BIO 272 Human Anatomy (3 Credits)

Study of the basic structure of organs and organ systems of the body.

Prerequisites: Take BIO-110. Take BIO-263L

BIO 272H Honors Human Anatomy (3 Credits)

Study of the basic structure of organs and organ systems of the body.

Prerequisites: Take BIO-110.

BIO 272L Human Anatomy Laboratory (1 Credits)

Study of the basic structure of organs and organ systems of the body.

BIO 278 Cell Biology (3 Credits)

Study of intracellular mechanisms and the influence of such processes on the cell and its extracellular environment.

Prerequisites: Take BIO-260. Take BIO-260L. Take BIO-262. Take CHM-221., Take CHM-221I. Take CHM-222. Take CHM-222I.

BIO 278H Honors Cell Biology (3 Credits)

Study of intracellular mechanisms and the influence of such processes on the cell and its extracellular environment.

BIO 278L Cell Biology Laboratory (1 Credits)

Study of intracellular mechanisms and the influence of such processes on the cell and its extracellular environment.

BIO 280 Human Anatomy & Physiology 1 (3 Credits)

This is the first of two courses which study the, anatomy and physiology of the human systems and, how disruptions to homeostasis affect the, organism. This course is intended for biology, majors only.

BIO 281 Human Anatomy & Physiology 2 (3 Credits)

This is the second part of two courses which study, the anatomy and physiology of the human systems, and how disruptions to homeostasis affect the, organism. This course is intended for biology, majors only.

BIO 310 General Microbiology (3 Credits)

Introduction to microbes, including bacteria, molds, yeasts, and viruses. Investigation of fundamental concepts of microorganisms, including nutrition, ecology, and physiology; principles of sterilization and methods of control of microorganisms; and their economic importance.

Prerequisites: Take BIO-260. Take BIO-260L. Take BIO-261. Take BIO-261I., Take CHM-221. Take CHM-221I. Take CHM-222. Take CHM-222I.

BIO 310L General Microbiology Laboratory (1 Credits)

Introduction to microbes, including bacteria, molds, yeasts, and viruses. Investigation of fundamental concepts of microorganisms, including nutrition, ecology, and physiology; principles of sterilization and methods of control of microorganisms; and their economic importance.

BIO 320 Pathophysiology (3 Credits)

Introduction to the study of the normal physiology of various systems of the human body and how alterations in structure and function can initiate the onset of disease. Inherent in this course is a study of the adaptive capacity of the human body.

Prerequisites: Take BIO-166 BIO-163.

BIO 350 Parasitology (3 Credits)

Study of symbiotic relationships between representatives that are dependent upon a symbiont and the clinical and pathological implications inherent in such a relationship.

Prerequisites: Take BIO-110. Take BIO-110L. Take BIO-111. Take BIO-111I., Take BIO-260. Take BIO-260L.

BIO 350L Parasitology Laboratory (1 Credits)

Inquiry-based application of the clinical and pathological implications of inherent relationships established between symbionts.

BIO 351 Principles of Genetics (3 Credits)

Introductory course dealing with the principles of heredity and variation in plants and animals, including man.

Prerequisites: Take BIO-260. Take BIO-260L. Take BIO-261. Take BIO-261I., Take CHM-221. Take CHM-221I. Take CHM-222. Take CHM-222I.

BIO 351L Principles of Genetics Laboratory (1 Credits)

Introductory genetic labs are designed to provide exercises that deal with the principles of heredity and variation in plants and animals, including man.

BIO 351R Experimental Genetics Laboratory (2 Credits)

This research course provides hands-on exploration, of techniques in genetics including recombinant, DNA technology, genomics, and PCR amplification.

BIO 362 Histology & Micro Technique (3 Credits)

Study of the structure and properties of cells, the cellular relationships to the main type of tissues and histology of organs; the principles and methods of preparation of plant and animal tissues; and some techniques in histochemistry.

BIO 362L Histology & Micro Technique Laboratory (1 Credits)

Study of the structure and properties of cells; the cellular relationships to the main type of tissues and histology of organs; the principles and methods of preparation of plant and animal tissues; and some techniques in histochemistry.

BIO 364 Biology Education Seminar (1 Credits)

Consideration of current research and development, in biology, including reviews, reports, and, discussions of investigations reported in, scientific journals., , For the Teaching Curriculum this seminar will, provide a comprehensive capstone-style experience, where students in the teacher certification, program will have an opportunity to review all the, science, math, and education courses that they, have completed in light of instructional delivery, at the secondary level.

BIO 369R Embryology & Developmental Biology Lab (2 Credits)

The course provides a research experience in, applying the principles of embryology and, developmental biology to student-driven, undergraduate research projects.

BIO 375R Advanced Anatomy & Physiology Lab (2 Credits)

The course provides a research experience in, applying the principles of anatomy and physiology, to student-driven undergraduate research projects.

BIO 384R Cell and Tissue Biology Laboratory (2 Credits)

The course provides a research experience in, applying the principles of cell and tissue biology, to student-driven undergraduate research projects.

BIO 405 MCAT Preparatory Course (3 Credits)

BIO 405 Prepares students for the Medical College, Admissions Test (MCAT) using intensive revision, and practice to help improve their, critical-thinking and problem-solving skills in, order to improve MCAT scores.

BIO 459 General Physiology (3 Credits)

Discusses fundamental principles and properties of physiological processes common to animals.

BIO 459L General Physiology Laboratory (1 Credits)

Demonstrates fundamental principles and properties of physiological processes common to animals.

BIO 461 Plant Physiology (4 Credits)

Consideration of the physicochemical factors involved in plant growth with special emphasis on synthesis, water economy, transpiration, energy transfers, mineral nutrition, regulation, and the red, far-red reactions of phytochrome of seed plants.

BIO 461H Honors Plant Physiology (4 Credits)

Consideration of the physicochemical factors involved in plant growth with special emphasis on synthesis, water economy, transpiration, energy transfers, mineral nutrition, regulation, and the red, far-red reactions of phytochrome of seed plants.

BIO 461L Plant Physiology Laboratory (0 Credits)

Consideration of the physicochemical factors involved in plant growth with special emphasis on synthesis, water economy, transpiration, energy transfers, mineral nutrition, regulation, and the red, far-red reactions of phytochrome of seed plants.

BIO 461R Plant Physiology Lab (2 Credits)

This course will focus on quantifying and, investigating plant physiological conditions via, novel, hands experimentation with a strong focus, on research.

BIO 469 Biochemistry (3 Credits)

Biochemical analysis of cellular function and consideration of the implications of the properties of cells, including the cell and its organization, protein structure and specificity; biochemistry of lipids, carbohydrates, and nucleic acids; regulation of cell metabolism; cellular basis of hormone action; and biochemical aspects of synthesis.

BIO 469L Biochemistry Laboratory (1 Credits)

Designed to analyze biochemical properties of protein structure and specificity; biochemistry of lipids, carbohydrates, and nucleic acids; regulation of cell metabolism; cellular basis of hormone action; and biochemical aspects of synthesis.

BIO 469R Biochemistry Lab (2 Credits)

Biochemistry laboratory provides in-depth,, hands-on laboratory experience with biochemistry, research.

BIO 474 Molecular Biology (3 Credits)

Introduction to the basic techniques in Recombinant DNA which encompasses the principles and practical aspects of molecular techniques through discussions, demonstrations, and hands-on experience.

BIO 474L Molecular Biology Laboratory (2 Credits)

Introduction to the basic techniques in Recombinant DNA which encompasses the principles and practical aspects of molecular techniques through discussions, demonstrations, and hands-on experience, covering isolation of DNA, restriction of endonuclease digestion, gel-electrophoresis, nick translation, southern and northern blots, and DNA sequencing.

BIO 485 Immunology (3 Credits)

General properties of immune responses; cells and tissues of immune system; lymphocyte activation and specificity; effector mechanisms; immunity to microbes; immunodeficiency and AIDS; autoimmune diseases; transplantation.

BIO 495 Biostatistics (3 Credits)

Introduction to statistical methods of health sciences. The principles underlying basic methods of statistical analysis are examined, including elementary concepts of probability, descriptive statistics, and statistical estimation and testing.

BIO 495H Honors Biostatistics (3 Credits)

Introduction to statistical methods of health sciences. The principles underlying basic methods of statistical analysis are examined, including elementary concepts of probability, descriptive statistics, and statistical estimation and testing.

BIO 497 Introduction to Research (2 Credits)

Introduction to independent experimental work under the guidance of faculty members. Provisions for honors and undergraduate research participation projects and investigations.

BIO 499 Tissue and Cell Culture (4 Credits)

Study of the basic protocols currently employed in the initiation and maintenance of cell lines for in vitro studies, including cell structure, cell types and tissues, behavior of cells in culture, and environmental factors that modulate cell growth.