

Biology (BIO) Courses

BIO1011 General Biology - Cellular

This course provides an introduction to the structure, function and genetics of living organisms. It is designed to be a first course for biology majors and to provide a foundation for more advanced courses in the biological sciences. Topics include the chemistry of biological molecules, cell structure and function, photosynthesis and cellular respiration, the cell cycle, mitosis, meiosis and sexual reproduction, and genetics. This course is taken concurrently with General Biology Laboratory - Cellular.

Prerequisite(s): Corequisite: BIO1016.

Offered at Charlotte, Providence, Providence CE

3 Semester Credits

BIO1016 General Biology Laboratory - Cellular

This is a laboratory companion course coordinated with BIO1011 that introduces students to techniques and equipment used in experimental biology. Students take an inquiry-based, self-guided learning approach to the discovery of cell structure and function, photosynthesis and cellular respiration, the cell cycle, and genetics. Additionally, this laboratory course provides students with the opportunity to practice laboratory safety, design experimental procedures, collect data, analyze results and discuss conclusions.

Prerequisite(s): Corequisite: BIO1011.

Offered at Charlotte, Providence, Providence CE

1 Semester Credit

BIO1022 General Biology - Organismal

This course provides an introduction to evolution, the diversity of life on earth, plant and animal form, function, growth, development and reproduction, ecology and ecosystems. This course is taken concurrently with General Biology Laboratory - Organismal.

Prerequisite(s): Corequisite: BIO1026.

Offered at Charlotte, Providence, Providence CE

3 Semester Credits

BIO1026 General Biology Laboratory - Organismal

This is a laboratory companion course coordinated with BIO1022 that introduces students to techniques and equipment used in experimental biology. Students take an inquiry-based, self-guided learning approach to the discovery of the mechanisms of evolution, plant and animal development, and growth, ecology and ecosystems. Additionally, this laboratory course provides students with the opportunity to practice laboratory safety, design experimental procedures, collect data, analyze results and discuss conclusions.

Prerequisite(s): Corequisite: BIO1022.

Offered at Charlotte, Providence, Providence CE

1 Semester Credit

BIO2001 Genetics

This course provides students with the knowledge and analytical skills necessary to understand the principles of modern genetics. The nature of genes, genomes and chromosomes; mechanisms of recombination and mutation; Mendelian inheritance patterns; and genetic mechanisms underlying evolution are studied. Genetic studies performed on model organisms (such as bacteria, yeast and mold) are discussed to illustrate and reinforce genetic principles relating to human genetics and diseases.

Prerequisite(s): BIO1011, BIO1016, BIO1022, BIO1026.

Offered at Providence, Providence CE

3 Semester Credits

BIO2021 Functional Human Anatomy

This course studies the functional anatomy of the human organism organized by body systems. The lecture portion explores structural and functional relationships in the human body. The microscopic and macroscopic structure of human tissues, organs and organ systems are examined with applications to health, wellness and disease states. Functional Human Anatomy (lecture and laboratory) is designed to meet prerequisites for graduate programs in the health sciences.

Prerequisite(s): BIO1022 and BIO1026, or SCI1015, Corequisite: BIO2026.

Offered at Charlotte, Providence, Providence CE

3 Semester Credits

BIO2026 Functional Human Anatomy Laboratory

This course explores the anatomical structure of the human body through the use of anatomical models, dissection of mammalian specimens and examination of prosected human cadavers. A regional/functional perspective is combined with a systemic overview of body systems. Functional Human Anatomy (lecture and laboratory) is designed to meet prerequisites for graduate programs in the health sciences.

Prerequisite(s): BIO1022 and BIO1026, or SCI1015, Corequisite: BIO2021.

Offered at Charlotte, Providence, Providence CE

1 Semester Credit

BIO2041 Human Physiology

This course examines the molecular, cellular and tissue-level processes involved in the function of human organ systems. Emphasis is on maintenance of internal homeostasis, organ system integration and components of human disease. Concurrent enrollment in BIO2046 Human Physiology Laboratory is required. Human Physiology (lecture and laboratory) is designed to meet prerequisites for graduate programs in the health sciences.

Prerequisite(s): BIO1011 and BIO1016, or SCI1015, CHM1022 and CHM1026 or CHM1000 and CHM1006, Corequisite: BIO2046.

Offered at Charlotte, Providence, Providence CE

3 Semester Credits

BIO2046 Human Physiology Laboratory

This laboratory course allows students to collect, analyze and apply data to examine and understand human physiologic processes. Activities include experiments, computer simulations and measurement of physiologic activity in human subjects. Equipment commonly found in a medical setting is used. Human Physiology (lecture and laboratory) is designed to meet prerequisites for graduate programs in the health sciences.

Prerequisite(s): BIO1011 and BIO1016, or SCI1015, CHM1022 and CHM1026 or CHM1000 and CHM1006, Corequisite: BIO2041.

Offered at Charlotte, Providence, Providence CE

1 Semester Credit

BIO2201 General Microbiology

This course introduces the basic morphological, physiological and genetic aspects of various microbes, and explores the application of this information in medical, agricultural and industrial settings. Key topics include structure/function relationships, factors affecting the growth and control of microorganisms, microbial genetics and evolutionary mechanisms, host-microbe interactions, microbial ecosystems, and applied microbiology. Emphasis is on the relationship between developments in the field of microbiology and various aspects of modern society.

Prerequisite(s): (BIO1011/BIO1016 or SCI1015) and (CHM1000/CHM1006 or CHM1022/CHM1026 or CHM2040), Corequisite: BIO2206.

Offered at Charlotte, Providence, Providence CE

3 Semester Credits

BIO2206 General Microbiology Laboratory

This is a laboratory companion course to be taken concurrently with General Microbiology. Students examine the properties of various microbes and factors affecting the growth and control of microbial agents. Throughout the term, students gain experience in light microscopy, pure culture and enrichment techniques, microbial identification, and enumeration. Emphasis is on appropriate and safe use of standard microbiological and molecular lab equipment and methods, as well as the ability to apply the scientific process.

Prerequisite(s): (BIO1011/BIO1016 or SCI1015) and (CHM1000/CHM1006 or CHM1022/CHM1026 or CHM2040), Corequisite: BIO2201.

Offered at Charlotte, Providence, Providence CE

1 Semester Credit

BIO3010 Principles of Biochemistry

Biochemistry applies the knowledge gained in general and organic chemistry to biological systems. Students gain an understanding of metabolic pathways, energy production, and metabolic regulatory mechanism in eukaryotes and prokaryotes. Students analyze primary journal articles that focus on the application of biochemistry in the health sciences, such as cancer screening, vaccine production, and Alzheimer's prevention. Additionally, students research fundamental biochemical techniques such as protein purification and enzyme kinetics.

Prerequisite(s): CHM2011, CHM2016.

Offered at Providence, Providence CE

3 Semester Credits

BIO4070 Fundamentals of Immunology

This is a survey course that introduces students to basic concepts of immunology and fosters an understanding of the immunological processes that underlie human disease pathogenesis.

Prerequisite(s): BIO1011, BIO1016, BIO3010 or CHM3040.

Offered at Providence, Providence CE

3 Semester Credits