

BIOLOGICAL SCIENCE (BIO)

93 Essentials of Biology

3 credit hours

Offered as demand warrants. Three hours lecture and discussion a week.

This course is designed to provide students, whose program requires completion of Biological Science 201 or Biological Science 207, but who have not achieved a satisfactory score on the Anatomy and Physiology Placement Examination, with basic science knowledge for an anatomy and physiology class. The course includes a study of the cell structure, energy of the cell, mitosis and meiosis, cellular transport, inorganic and organic chemistry, acid-base, and biological macromolecules. This course does not meet associate degree graduation requirements. Course may be used to fulfill the prerequisites for Biological Science 201 or Biological Science 207.

Prerequisite: Minimum high school GPA of 3.0 or appropriate assessment scores and Mathematics 90.

100 Biology for Allied Health Students

4 credit hours

Offered fall and spring semesters. Three hours lecture and three hours laboratory a week. Fee: \$70.00. Inclusive Access Fee: \$87.00. Web Biology: Inclusive Access Fee: \$94.00

This course is designed for allied health majors and may serve as a prerequisite for Biological Science 201, 204 and 207. In this course, students will study the fundamental concepts common to all living organisms, be introduced to basic lab science skills, and learn about the systematic approach to studying life. The relevance of the following topics to humans is emphasized: the chemical basis of life, biological organization, cell structures and functions, metabolism, energy utilization, heredity, and basic human anatomy. Through laboratory exercises, experiments, and animal and organ dissection the students' understanding of the concepts discussed in lecture will be enhanced.

Prerequisite: English 92 and Mathematics 90.

101 General Biology I

4 credit hours

Offered fall and spring semesters and summer session. Three hours lecture and three hours laboratory a week. Fee: \$70.00. Inclusive Access Fee: \$94.00.

To present a study of the general characteristics and basic concepts of living organisms, which includes: the hierarchical organization of life, scientific method and experimental design, basic chemistry of life (inorganic and organic), cell types and structures, membrane structure and function, thermodynamics/energy flow, metabolic processes (photosynthesis & cellular respiration), the cell cycle, meiosis, and an introduction to genetics.

Prerequisites: Mathematics 90 with a grade of C or better, appropriate test scores, or equivalent measures must be completed prior to taking this course. English 92 with a grade of C or better, appropriate test scores, or equivalent measures, must be completed before taking this course.

102 General Biology II

4 credit hours

Offered spring semester. Three hours lecture and three hours laboratory a week. Fee: \$70.00. Inclusive Access Fee: \$94.00.

This course is a continuation of Biological Science 101. Includes a study of whole organism biology, including diversity of all kingdoms, macroevolution and microevolution, and basic principles of ecology. Ecological topics include population ecology, how species interact within communities, biogeochemical cycles, ecological pyramids, and ways that humans affect the environment. The laboratory work involves the examination of biological specimens, including some dissection of organisms.

Prerequisite: Biological Science 101.

103 General Botany

4 credit hours

Offered fall semester. Three hours lecture and three hours laboratory a week. Fee: \$70.00. Inclusive Access Fee: \$95.00.

A study of seed plants, conifers, and flowering plants, with emphasis on anatomy, morphology, taxonomy, and evolution. Principles of genetics, ecology, and physiology.

109 Osteology

4 credit hours

Offered fall semester. Three hours lecture and three hours laboratory a week. Fee: \$65.00.

This course is designed to provide a detailed understanding of the skeletal anatomy of the human body and a brief overview of the visceral anatomy with relationships in the different body positions as they relate to radiography.

Prerequisite: Permission of instructor

110 Forest Ecology

3 credit hours

Offered spring semester. Two hours lecture and three hours laboratory a week. Fee: \$70.00.

This course covers an ecological study of plants and animals of forest interest, approached through the study of individual ecosystems. Emphasis will be placed on the interrelations between groups of these organisms and the effect that the environment has on them. Some studies will be conducted in the field.

Prerequisite: English 92 and Mathematics 90

114 Fundamentals of Nutrition

3 credit hours

Offered fall and spring semesters. Three hours lecture a week.

This course presents a study of the fundamentals of nutrition and the relationship of nutrition and health throughout all stages of the life cycle.

Prerequisites: Mathematics 90 with a grade of C or better, appropriate test score, or equivalent measures, must be completed prior to taking this course. English 92 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed prior to taking this course.

116 Human Biology

3 credit hours

Offered fall and spring semesters. Three hours lecture a week. Inclusive Access Fee: \$116.00

An introductory lecture course for the non-science major covering the basic structure and function of the human body with discussions on human ecology and genetics as appropriate. This course is not designed to fulfill laboratory science requirements of any curricula.

Minimum high school GPA of 3.0 or appropriate assessment scores.

Requisites: Mathematics 90 with a grade of C or better, appropriate test score, or equivalent measures, must be completed prior to taking this course. English 92 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed prior to taking this course.

121 Musculoskeletal Anatomy of the Human

4 credit hours

Offered fall semester. Three hours lecture and three hours laboratory a week. Fee: \$70.00

This course is designed to provide experience with basic concepts and terminology associated with the study of the human body. The major focus of the course is to develop the student's detailed knowledge of the human muscular system and skeletal system.

Prerequisite: Mathematics 90 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course. English 92 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course. Biology 93 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course.

131 Inquiries Into Biology

4 credit hours

Offered fall and spring semesters. Three hours lecture and three hours laboratory a week. Fee: \$70.00

This course takes an inquiry-based approach into the fundamental concepts of biology. Students discover information pertaining to biological concepts in lecture/ laboratory setting. Areas covered include: characteristics of life, biochemistry, cell biology, evolution, the use of diversity to discuss anatomical, physiological, and human health considerations of organisms, classifications, ecology, genetics, and energetics.

Prerequisites: Mathematics 090 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course. English 92 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course.

145 Environmental Science 4 credit hours

Three hours lecture and three hours laboratory a week. Fee: \$95.00
Inclusive Access Fee: \$53.00.

This course emphasizes environmental topics relative to today's society. Topics will include environmental strategy, ecological principles, biotic and abiotic principles within ecosystems, structure and function of major ecosystems, human population dynamics, relationship of economics, government, and environment, various types of energy sources, pollution, and water. Some studies will be conducted in the field. All day field trips may be required.

Mathematics 90, English 92.

150 Medicinal Botany 3 credit hours

Two hours lecture and three hours laboratory a week. Fee: \$70.00.

This course is designed primarily for allied health professionals who want to expand their knowledge of holistic health care practices. Topics will include the history of medicinal plants, plant anatomy and function, phytochemicals, species identification, plant cultivation, sources of information, and safe practices. In addition to lectures the student will spend time in the laboratory, greenhouse, and field.

Prerequisites: Mathematics 90 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course. English 92 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed before taking this course.

175 Microbiology of Brewing 4 credit hours

Offered fall semester. Three hours lecture and three hours lab per week. Fee: \$200.00.

This course will introduce microbiology and laboratory practices used in the brewing process. Topics will include the biology of yeast, the fermentation process, and microorganisms that contribute to beer quality and deterioration.

Prerequisites: Math -090 with a grade of C or better, appropriate test scores, or equivalent measure, must be completed prior to taking this course. ENG-092 with a grade of C or better, appropriate test scores, or equivalent measures, must be completed prior to taking this course.

201 Human Anatomy and Physiology 4 credit hours

Offered spring semester. Three hours lecture and three hours laboratory a week. Fee: \$70.00.

This course is designed to provide an understanding of the working of the human body in terms of the structure and function of representative systems. The laboratory work involves a complete study and dissection of selected animal organs and physiological activities with comparison to the human.

This course is designed for selected allied health majors and is not equivalent to Biological Science 207 or 208 (Anatomy and Physiology of the Human I and II). It is not an approved prerequisite for Biological Science 208.

Prerequisites: Biological Science 100, 101, or 121 with a grade of C or better must be completed prior to taking this course, or consent of instructor.

204 Microbiology 4 credit hours

Offered fall and spring semesters and summer session. Three hours lecture and three hours laboratory a week. Fee: \$70.00.

Principal topics of this course are prokaryotic cell morphology, metabolism, genetics, and growth; microbial control; the human immune system; and infectious diseases. Microbial diversity, their roles in the biosphere, and the ways in which humans use microbes are also discussed. In the lab, students use aseptic techniques, staining, biochemical tests, and other procedures in order to become familiar with basic microbiology techniques and to identify an unknown bacterial culture. The process of science is also discussed in this course, and students create and test hypotheses via the scientific method.

Prerequisites: A grade of C or better in a four-credit biological lab science or chemistry lab course, excluding Biology 145, or consent of instructor.

206 Biotechnology (Medical Laboratory Technology 206) 4 credit hours

Three hours lecture and three hours laboratory a week. Fee: \$100.00.

Theory and techniques commonly used in biotechnology will be explored. Theory topics include structure, function, and synthesis of DNA, RNA, and protein and the conceptual bases of molecular biology techniques, including gel electrophoresis, plasmid preparation, transformation of cells, nucleic acid manipulation, blotting and probing techniques, polymerase chain reaction, and protein purification.

Prerequisite: Medical Laboratory Technology 114, Biological Science 101, Chemistry 100 or 101, and Mathematics 102 or 119, or consent of instructor.

207 Anatomy and Physiology of the Human I 4 credit hours

Offered fall and spring semesters and summer session. Three hours lecture and three hours laboratory a week. Fee: \$70.00. Inclusive Access Fee: \$94.00.

This course is designed to provide an understanding of the structure and function of the human body. Basic concepts are emphasized and the following systems are studied in detail: integumentary, skeletal, muscular, nervous, and special senses. The laboratory work involves related physiology exercises and the dissection of the cat and its comparison to man. Required of all Nursing students.

Prerequisite: Biological Science 100, 101, 109, or 121 with a grade of C or better, or a satisfactory score on the Anatomy and Physiology Placement test. Mathematics 90 with a grade of C or better, or the appropriate test scores

208 Anatomy and Physiology of the Human II 4 credit hours

Offered fall and spring semesters and summer session. Three hours lecture and three hours laboratory a week. Fee: \$70.00. Inclusive Access Fee: \$94.00.

A continuation of Anatomy and Physiology of the Human I. The following systems are studied in detail: circulatory, respiratory, digestive, urinary, reproductive, and endocrine. The laboratory work involves related physiology exercises and the dissection of the cat and its comparison to man. Required of all Nursing students.

Prerequisite: Biological Science 207 with a grade of "C" or better.

213 Dendrology I 2 credit hours

Offered fall semester. One-hour lecture and three hours laboratory a week. Fee: \$70.00. Refundable equipment deposit: \$200.00.

A taxonomic study of families, genera, and species of woody plants, with additional emphasis placed on those important in forestry and related fields. Forest communities, distributions, key usage, and field identification will be integral to this course. Greater emphasis will be placed on the angiosperms than on the gymnosperms.

Prerequisite: Biological Science 103 as a corequisite, or consent of the instructor.

214 Dendrology II 2 credit hours

Offered spring semester. One-hour lecture and three hours laboratory a week. Fee: \$70.00. Refundable equipment deposit: \$200.00.

A continuation of Dendrology I, with greater emphasis placed on the gymnosperms than on the angiosperms.

Prerequisite: Biological Science 213.

220 Essentials of Cell Biology and Genetics 4 credit hours

Three hours lecture and three hours laboratory a week. Fee: \$95.00.

Issues critical to understanding cellular biology will be explored. These include: structure and function of biological macromolecules, enzymology, basic metabolism, membrane mechanics, structure and function of cellular organelles, cell communication, cell division, and cell cycle control. Concepts in genetics include structure and function of genes and chromosomes, genetic variation and gene regulation. This course will allow the student to develop experience in lab safety, good laboratory and manufacturing practice (GMP), documentation of all procedures and use of computers for statistical and graphical data analysis.

Prerequisite: Medical Laboratory Technology 114, Biological Science 101, Chemistry 100 or 101, and Mathematics 102 or 119, or consent of instructor.

297 Field Studies in Biology and Geology (Physics 297) 4 credit hours

Consult with instructor prior to registration. Fee: To be established based on location of field studies.

An interdisciplinary study of ecosystems in their natural settings. Emphasis will be placed on plant communities and key animal populations, geology, climate, and the influence of humans as they are related to one another. Studies, which will include lectures and laboratories, will be conducted in the field where specimens will be collected and catalogued. Course may be repeated one time for credit. Course may be taken again as audit status, but all fees and tuition will apply.

Prerequisite: Biological Science 101 or 103 or 107 or Physics 105. Instructor consent required.

299 Special Problems 1-4 credit hours

Fee: \$70.00.

Study projects under the direct supervision of the instructor. Library and laboratory research on selected problems. This course may be repeated for credit. Honors credit by contract may be available in some sections of this course. Qualified students should consult the instructor.

Prerequisite: Biological Science 102, or 110; or consent of instructor.