

BSC: Biological Sciences Courses

Courses

BSC 1005 General Biology for Non-Majors
3 sh (may not be repeated for credit)

Survey of abiotic and biotic principles as they apply to basic structural and functional topics at the cellular, organismal, population and community levels; and the application of these principles to issues of current interest. Meets General Education requirement in Natural Sciences.

BSC 1005L General Biology Laboratory for Non-Majors
1 sh (may not be repeated for credit)
Prerequisite: BSC 1005*

Lab correlating with BSC 1005. Material and Supply Fee will be assessed. Satisfies Florida Common Core Natural Sciences requirement.

BSC 1050 Fundamentals of Ecology
3 sh (may not be repeated for credit)

Intended for non-majors who have an interest in nature and how they interact with nature. Gives general overview of ecological principles and how these principles influence the outside world around us. Imbedded are several activities that are associated with each chapter. The activities were developed so that the student will gain a respect for ecology as well as show how ecological principles affect your daily life. Meets General Education requirement in Natural Sciences.

BSC 1085 Anatomy and Physiology I
3 sh (may not be repeated for credit)

General introduction to form and function of the human body. Review of basic anatomical / physiological attributes of integumentary, skeletal, muscular, nervous and sensory organ systems. Designed for students with little or no previous anatomy or physiology experience. Lab optional. Meets General Education requirement in Natural Sciences.

BSC 1085L Anatomy and Physiology I Laboratory
1 sh (may not be repeated for credit)

Optional lab associated with course. Anatomical dissection and experimental physiology exercises that enhance understanding of human form and function. Exercises parallel topics presented in the lecture series. Material and supply fee will be assessed.

BSC 1086 Anatomy and Physiology II
3 sh (may not be repeated for credit)
Prerequisite: BSC 1085

Continuation of Anatomy and Physiology I. Reviews basic anatomical/physiological attributes of endocrine, cardiopulmonary, digestive, reproductive and immune systems. Lab optional. Meets General Education requirement in Natural Sciences.

BSC 1086L Anatomy & Physiology II Laboratory
1 sh (may not be repeated for credit)

Optional lab associated with course. Anatomical dissections and experimental physiology exercises that enhance understanding of human form and function. Exercises parallel topics presented in the lecture series. Material and Supply Fee will be assessed.

BSC 1905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

BSC 2010 Biology I
3 sh (may not be repeated for credit)
Prerequisite: BSC 2010L*

Introduction to the cellular processes of living organisms, including subcellular structures, biochemical and genetic regulation of function and growth, reproduction, heredity, and evolution. Material and supply fee will be assessed for the corresponding lab. Meets General Education requirement in Natural Sciences.

BSC 2010L Biology I Laboratory
1 sh (may not be repeated for credit)
Prerequisite: BSC 2010*

Introduction to the science method, reading, and writing, microscopy, and science measurement. Cellular processes of prokaryotic and eukaryotic organisms, including subcellular structures, biochemical and genetic regulation of function and growth, reproduction, heredity, and evidence of evolution. Material and supply fee will be assessed for this lab.

BSC 2011 Biology II
3 sh (may not be repeated for credit)
Prerequisite: BSC 2010/L AND BSC 2011L*

Explores the diversity of life including bacteria, protists, fungi, plants and animals at the introductory level designed for students starting a major in biology. The course will outline the tree of life in illustrating the evolutionary relationships among organisms. The course will also cover basic functional morphology and physiology at the organismal level, and provide an introduction to ecological interactions at the population and community level. Meets General Education requirement in Natural Sciences.

BSC 2011L Biology II Laboratory
1 sh (may not be repeated for credit)
Prerequisite: BSC 2010/L AND BSC 2011*

Explores the diversity of life including bacteria, protists, fungi, plants and animals at the introductory level designed for students starting a major in biology. The course will outline the tree of life in illustrating the evolutionary relationships among organisms. The course will also cover basic functional morphology and physiology at the organismal level, and provide an introduction to ecological interactions at the population and community level.

BSC 2311 Introduction to Oceanography and Marine Biology
3 sh (may not be repeated for credit)

An introduction to the chemical, physical and geological features of the world ocean and the major groups of living marine organisms that inhabit it. Physical chemical and biological interrelationships will be emphasized. Credit not granted toward a major in Biology. Meets General Education requirement in Natural Sciences.

BSC 2311L Introduction to Oceanography and Marine Biology Laboratory
1 sh (may not be repeated for credit)

Lab correlating with BSC 2311. Credit not granted toward a major in Biology. Material and Supply Fee will be assessed.

BSC 2844 Biology Skills
1 sh (may not be repeated for credit)

A professional development course for students in the Biology and Pre-professional curriculum plan. It will introduce the students to necessary skills for upper division biology courses, including reading and interpretation of scientific publications, scientific writing styles, ethics, and critical thinking.

BSC 2905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

BSC 3905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

BSC 4263 Biological Oceanography
3 sh (may not be repeated for credit)

Biota of the oceans, including systematics, special morphological adaptations, physiology, natural history and zoogeography of plankton and nekton. Relationship between biota and the physiochemical properties of the pelagic realm.

BSC 4303 Biogeography
3 sh (may not be repeated for credit)

Relates the principles of taxonomy, ecology and evolution to the distribution of plants and animals. Codes of taxonomic nomenclature and the processes of describing species and ranges, species concepts and speciation, paradigms of constructing phylogenies, a review of the geologic ages of the earth, modern terrestrial and oceanic biodiversity and biogeographic provinces and human impact on species extinctions and introductions. Offered concurrently with BSC 5305; graduate students will be assigned additional work.

BSC 4434 Bioinformatics and Data Science
3 sh (may not be repeated for credit)

This course explores concepts and practical applications in bioinformatics. It covers essential topics such as data organization, representing and reasoning about sequence data, simple data mining strategies, and ethical protocols for data collection. Students will learn how to apply data science principles to biological and clinical problems to effectively work with large data sets, format data, and design applications to help visualize, analyze, interpret, and communicate the resulting insights in ways that advance science. Offered concurrently with BSC 5459; graduate students will be assigned additional work.

BSC 4854 Bioterrorism
3 sh (may not be repeated for credit)

Biological weapons employed against man (emphasis), animals and plants will be discussed during the semester. The major biological agents targeted for use as weapons against humans will be dealt with in detail including the various clinical forms induced by exposure to the agents, prophylaxis and treatment for the resulting diseases and the primary routes of dissemination of the agents studied. The class will cover the potential for biowarfare/bioterrorist acts, how destruction is produced, and what countries / groups have access to sufficient bioagent or the capacity for producing large quantities of biological agents for use as a weapon. Wargames in which bioagents are employed, including casualty estimates and socioeconomic impact will be discussed and played out. Government preparedness to deal with biowarfare / bioterrorism will be addressed with emphasis on plans for surveillance and response. Offered concurrently with BSC 5856; graduate students will be assigned additional work.

BSC 4905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

BSC 4941 Clinical Experience in Health Care
3 sh (may not be repeated for credit)
Prerequisite: Completion of 90 hours of college course work is required prior to taking this course.

Clinical experience in select health care locations within the region through Memoranda of Understanding (MOU) established with UWF and Biology. Permission process includes an interview conducted by the target health care entity to ensure expectations of student and health care entity will be met. Students will be expected to invest a minimum of 12 hrs / week on the project during the semester in which they are enrolled. A final report on the project(s) will be submitted. Permission is required.

BSC 5305 Biogeography
3 sh (may not be repeated for credit)

Relates the principles of taxonomy, ecology and evolution to the distribution of plants and animals. Codes of taxonomic nomenclature and the processes of describing species and ranges, species concepts and speciation, paradigms of constructing phylogenies, a review of the geologic ages of the earth, modern terrestrial and oceanic biodiversity and biogeographic provinces and human impact on species extinctions and introductions. Offered concurrently with BSC 4303; graduate students will be assigned additional work.

BSC 5459 Bioinformatics and Data Science
3 sh (may not be repeated for credit)

This project-based course explores concepts and practical applications in bioinformatics. It covers essential topics such as data organization, representing and reasoning about sequence data, simple data mining strategies, and ethical protocols for data collection. Students will learn how to apply data science principles to biological, clinical, and public health problems to effectively work with large data sets, format data, and design applications to help visualize, analyze, interpret, and communicate the resulting insights in ways that advance science. Students will further examine current events demonstrating how collaborative, cross-disciplinary teams use bioinformatic technologies and tools with big data analytics to support translational research. Open to students from any discipline.

BSC 5856 Bioterrorism
3 sh (may not be repeated for credit)

Biological weapons employed against man (emphasis), animals and plants will be discussed during the semester. The major biological agents targeted for use as weapons against humans will be dealt with in detail including the various clinical forms induced by exposure to the agents, prophylaxis and treatment for the resulting diseases and the primary routes of dissemination of the agents studied. The class will cover the potential for biowarfare / bioterrorist acts, how destruction is produced, and what countries / groups have access to sufficient bioagent or the capacity for producing large quantities of biological agents for use as a weapon. Wargames in which bioagents are employed, including casualty estimates and socioeconomic impact, will be discussed and played out. Government preparedness to deal with biowarfare / bioterrorism will be addressed with emphasis on plans for surveillance and response. Offered concurrently with BSC 4854; graduate students will be assigned additional work.

BSC 5905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

BSC 6002L Contemporary Laboratory Skills
4 sh (may not be repeated for credit)

A review of contemporary laboratory protocols and techniques necessary for the modern biologist to succeed in the professional, academic, or intellectual biology community. Provides students with a theoretical understanding of various techniques, their application, and the opportunity to master basic essential techniques in the laboratory. Topics include good laboratory practices, cell culture techniques, nucleic acid manipulation, macromolecular separation and detection, DNA analysis, chromatographic separations, spectrophotometry, microscopy, and radioisotope usage. Material and Supply Fee will be assessed.

BSC 6840 Professional Development in Biology
3 sh (may not be repeated for credit)

A review of contemporary protocols, techniques, and methods needed to succeed in the professional, academic, or intellectual biology community. Topics include 1) organization of the professional and academic biology environment, 2) reading, interpreting, organizing and publishing biological literature, 3) biological project development, presentation, and funding, 4) locating and securing positions in the biological sciences.

BSC 6905 Directed Study
1-12 sh (may be repeated indefinitely for credit)

BSC 6941 Internship in Biomedical/Pharmaceutical Industry
6 sh (may not be repeated for credit)

The student will be placed with a regional biotech / biomed / pharmaceutical company where they will be assigned to a lower or middle-level administrator and be engaged in the daily conduct of business in the industry. The industry mentor, in consultation with the faculty advisor, will assign a specific project to the student which engages information from one or more of the topics covered in the Professional Development course which must be completed in the time allotted. The student will be required to produce a written report describing their project and the project outcome in which they draw and defend conclusions and make and defend recommendations. Student performance will be assessed by the industry mentor in cooperation with the faculty advisor.

BSC 6971 Thesis
1-6 sh (may be repeated for up to 12 sh of credit)

Graded on satisfactory / unsatisfactory basis only. Permission is required.

* This course may be taken prior to or during the same term.