

BIOLOGICAL SCIENCES (BSC)

BSC 1005 - Biological Science (3 Credits)

This course applies the scientific method to critically examine and explain the natural world including but not limited to cells, organisms, genetics, evolution, ecology, and behavior.

Corequisite(s): BSC 1005L

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENA - Gen. Ed -Natural Sci., Gen. Ed -Natural Sci., SCIQ - Scientific Inquiry, SUSC - Sustainability Component, Scientific Inquiry

BSC 1005L - Biological Science Laboratory (1 Credits)

Laboratory exercises that provide hands on and/or simulated experiences for the major concepts in modern biology including cellular biology, plant biology, human biology, genetics, evolution, behavior and ecology.

Corequisite(s): BSC 1005

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENL - Gen. Ed -Science Lab, Gen. Ed -Science Lab, SCIQ - Scientific Inquiry, SUSC - Sustainability Component, Scientific Inquiry

BSC 1007C - Introduction to Biology (3 Credits)

This course is designed to provide foundational knowledge and laboratory skills necessary for success in life and health science courses. Lecture will include review of math and chemistry concepts central to biology (PH, molarity, etc.), analyzing structure in relation to function through illustration of functional groups and biological molecules, focus on understanding and rendering phylogenetic trees, and reading comprehension of scientific literature. In lab, students will focus on skills such as safety procedures, microscopy, pipetting, measurement, experimental design, data analysis and presentation, and scientific communication.

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

BSC 1010C - General Biology with Lab I (4 Credits)

In this course students will apply the scientific method to critically examine and explain the natural world. This course will cover molecular biology, cellular biology, genetics, metabolism, and replication.

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, SUSC - Sustainability Component, Scientific Inquiry

BSC 1011 - General Biology II (3 Credits)

Intended for science majors. The examination of biological systems from the organismal level through the system level incorporating theory of evolution, biodiversity and systematics, and ecology.

Corequisite(s): BSC 1011L

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENA - Gen. Ed -Natural Sci., Gen. Ed -Natural Sci., SCIQ - Scientific Inquiry, SUSC - Sustainability Component, Scientific Inquiry

BSC 1011L - General Biology II Laboratory (1 Credits)

Intended for science majors. Laboratory experiments related to the examination of biological systems from the organismal level through the system level incorporating theory of evolution, biodiversity and systematics, and ecology.

Corequisite(s): BSC 1011

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENL - Gen. Ed -Science Lab, Gen. Ed -Science Lab, SCIQ - Scientific Inquiry, SUSC - Sustainability Component, Scientific Inquiry

BSC 1020C - Human Systems (3 Credits)

The study of the basic principles of human biology. Investigates cell biology, reproduction and genetics and human anatomy and physiology including ecological impacts on human systems. The curriculum is inquiry based and fully integrated with a laboratory that emphasizes active learning strategies.

Attribute(s): GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, SUSC - Sustainability Component, Scientific Inquiry

BSC 1051C - Enviro Bio-SW Fla Environment (3 Credits)

The environment of southwest Florida is used as an example to investigate environmental concepts within their ecological, cultural, economic, and historical contexts. Multiple sources of information including scientific data and artistic expression are utilized to evaluate ecological principles and environmental ethics, attitudes, and beliefs. This course is inquiry based and fully integrated with both laboratory and field experiences which emphasize active learning strategies.

Attribute(s): GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

BSC 1085C - Hum Anat & Physio w/Lab I (4 Credits)

This course is the first part of a two-semester sequence in which students examine human anatomy and physiology through a systems approach based on the interaction between form and function, from the microscopic components of cells and tissues to the organismal level. Emphasis is placed on histology and the integumentary, skeletal, muscular, and nervous systems.

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

BSC 1086C - Hum Anat & Physio w/Lab II (4 Credits)

Primarily intended for health science majors. Investigation of the structure and function of the human systems, including: cardiovascular, respiratory, renal, gastrointestinal, immune, and reproductive systems. The curriculum is inquiry based and fully integrated with a laboratory that emphasizes active learning strategies.

Prerequisite(s): BSC 1085C

Attribute(s): CRIT - GE Critical Think Competency, GE Critical Think Competency, GENC - Gen. Ed -Natural Sci+Lab, Gen. Ed -Natural Sci+Lab, SCIQ - Scientific Inquiry, Scientific Inquiry

BSC 1930L - Seminar in Medicine I (1 Credits)

This course provides a discussion and problem solving format of contemporary topics in medicine with reviews of the literature.

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs, SUSC - Sustainability Component

BSC 2026 - Biology of Human Sexuality (3 Credits)

Examination of the anatomy and physiology of reproduction, sexual response, gender identity, sexual orientation, love and attraction as well as scientific method by which sexuality is studied.

Attribute(s): SUSC - Sustainability Component

BSC 2930L - Seminar in Medicine II (1 Credits)

This course is a continuation of BSC 1930L and provides a discussion and problem-solving format of contemporary topics in medicine with reviews of the literature and volunteer participation in the community as a part of service learning.

Prerequisite(s): BSC 1930L

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs, SUSC - Sustainability Component

BSC 3841 - Medical Illustration (3 Credits)

Do science and art belong together? This course will familiarize the student with the art of medical illustration, including its history, techniques, and varied applications. Students will spend the class time drawing as well as learning anatomy, physiology, and pathophysiology. Students should enjoy drawing and be willing to communicate science through art.

BSC 3874 - Human Pharmacology (3 Credits)

This course will cover the basics of neurotransmission, the ways that drugs bind and affect receptors, as well as pharmacokinetics and pharmacodynamics. Prescription, over-the-counter and recreational drugs will be covered and their effects on organ systems reviewed.

Prerequisite(s): PCB 3703C

BSC 3880C - Anatomy and Arts (3 Credits)

How do we tell our stories about health and illness? Students in this multidisciplinary undergraduate course will start by reading popular fiction with a medical-based theme. Each literary reading will form the basis of discussion and learning about a specific disease process. We will review the anatomy and physiology of each disease as well as produce various pieces of artwork. Students will learn about visual thinking strategies through art creation and illustration.

BSC 3930L - Seminar in Medicine III (1 Credits)

This course is a continuation of BSC 2930L and provides a discussion and problem-solving format of contemporary topics in medicine with review of the literature and volunteer opportunity for service learning. (Continued acceptance in the BS Biology Accelerated 3+4 concentration, instructor permission.)

Prerequisite(s): BSC 2930L

Attribute(s): SUSC - Sustainability Component

BSC 4052 - Conservation Biology (3 Credits)

The scientific basis of biological conservation. The course focuses on a description of biological diversity, threats to biodiversity and current practices in maintaining biodiversity.

Prerequisite(s): BSC 1010C (may be taken concurrently) or (BSC 1010 (may be taken concurrently) and BSC 1010L (may be taken concurrently)) and BSC 1011C (may be taken concurrently) or (BSC 1011 (may be taken concurrently) and BSC 1011L (may be taken concurrently)) and (PCB 3673 or PCB 3673C)

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs

BSC 4312 - Marine Biology (3 Credits)

This course allows students to explore the diversity of organisms living in the oceans, with an emphasis on the adaptations that enable organisms to live in marine habitats from the intertidal zone to the deepest portions of the oceans.

Prerequisite(s): (BSC 1010C or (BSC 1010 and BSC 1010L)) and (BSC 1011C or (BSC 1011 and BSC 1011L)) and PCB 3023C

BSC 4422C - Methods in Biotechnology (3 Credits)

Techniques and applications of biotechnology will be studied with a strong emphasis on laboratory investigation. Recombinant DNA technology will be the focus of study with applications in plant and animal systems. The impacts of biotechnology on society will be examined, such as the human genome project and agricultural biotechnology.

Prerequisite(s): PCB 3063C and (BCH 3023C or BCH 4033C or BCH 4033 and BCH 4033L)

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs, SUSC - Sustainability Component

BSC 4430C - Molecular Methods in Biology (3 Credits)

This course introduces the theoretical and practical basis for understanding key molecular experimental techniques used in modern biology research. The students receive practical hand-on experience in selected techniques.

Prerequisite(s): PCB 3063C

BSC 4434C - Bioinformatics (3 Credits)

Introduction to the field of bioinformatics, focusing on the fundamental tools and analysis methods that bridge biology and computational science. Covers basic concepts in computational biology, sequence analysis and data interpretation.

Prerequisite(s): PCB 3063C

BSC 4473C - Scientific Diving (3 Credits)

Scientific Diving BSC 4473C trains and certifies students to SCUBA dive and collect scientific data following the standards of the American Academy of Underwater Sciences. The course covers the technical aspects of diving, including underwater navigation and dive safety. The course also introduces environmental sample collecting and experimental design facilitated by diving.

Attribute(s): WBLI - Work based learning indicator

BSC 4514 - Endocrine Disruptors (1 Credits)

An examination of the biological effects of human-synthesized endocrine disrupting chemicals on animals and humans by reviewing primary literature and other resources.

Prerequisite(s): (BSC 1010C or BSC 1010 and BSC 1010L) and (BSC 1011 and BSC 1011L or BSC 1011C)

BSC 4900 - Dir Ind Study/Research in Bio (1-3 Credits)

Individual study/research under the direction of a faculty mentor. The topic will be selected based on mutual agreement between the student and the faculty mentor.

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs

BSC 4905 - Dir. Ind.Study/Res. Biotech. (1-3 Credits)

Individual study/research under the direction of a faculty mentor. The topic of study needs to be focused in a Biotechnology area. Permission of the instructor required.

Attribute(s): BTEL - Biotec Restricted Elect, ENVE - Envir.Stud.Elect.Pathway

BSC 4910C - Senior Project I: Research (2 Credits)

Research projects or certain aspects of research are carried out by students under the supervision of a faculty mentor in this Senior Capstone sequence. The project is designed to hone skills in applying research principles and obtaining practice in data collection and analysis. ~ Previous course number was BSC 4910.

Prerequisite(s): PCB 3063C or PCB 3023C or PCB 3043C

BSC 4911 - Sr Project II: Presentation (1 Credits)

A continuation of the senior research project, students will be expected to prepare and present a summary of their research.

Prerequisite(s): BSC 4910 or BSC 4910C

BSC 4930 - Special Topics in Biology (2-4 Credits)

Courses will be developed based on topics of current or special interest to students or faculty.

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs, BTEL - Biotec Restricted Elect

BSC 4933 - Current Topics in Biology (1 Credits)

Special sessions exploring current scientific literature in a selected topic in Biological Sciences.

Prerequisite(s): (BSC 1010C or (BSC 1010 and BSC 1010L) and (BSC 1011C or (BSC 1011 and BSC 1011L))) or SCE 4330

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs, ENVE - Envir.Stud.Elect.Pathway, SUSC - Sustainability Component

BSC 4940 - Internship in Biology (0-3 Credits)

An internship provides the student with an opportunity to work on a project in the field or laboratory setting. This work is usually completed off-campus and the student will work with a qualified supervisor at the site as well as with a faculty mentor.

Prerequisite(s): PCB 3063C and (PCB 3023C or PCB 3703C)

Attribute(s): BIOE - Biology Elective, BPRO - BS Bio Pre-Pro Reqs, WBLI - Work based learning indicator

BSC 4941 - Internship in Biotechnology (1-3 Credits)

An internship working on a project in Biotechnology in an external laboratory or industrial setting. The student will work with an external qualified supervisor and with a faculty mentor. Permission of the program director required.

Prerequisite(s): (ISC 3120C or ISC 3120) and BSC 4422C

Attribute(s): WBLI - Work based learning indicator

BSC 4942C - Senior Res. Biotech. (2 Credits)

Research project in Biotechnology under the supervision of a faculty mentor. Students will apply experimental design, data collection and analysis. Senior standing is required. Permission of the program director is required.

Prerequisite(s): (ISC 3120C or ISC 3120) and BSC 4422C

BSC 4943 - Sr. Proj. Pres. Biotech. (1 Credits)

Presentation of the results of the project carried out in the Senior Research in Biotechnology course.

Prerequisite(s): BSC 4942C

BSC 4944C - Senior Project I: Internship (2 Credits)

Senior Project I: Internship provides the student with an opportunity to work on a project in a business, non-profit, field, or laboratory setting. This work is usually completed off-campus and the student will work with a qualified supervisor at the site as well as a faculty mentor.

Prerequisite(s): PCB 3063C or PCB 3023C or PCB 3043C

Attribute(s): WBLI - Work based learning indicator

BSC 6840 - Ethics & Compliance in Biology (1 Credits)

This course will cover Compliance and ethics issues that new graduate students should be familiar with upon entry into graduate-level research. This course develops specific skills and experiences expected of professional research scientists. It introduces the principles of ethical conduct and social responsibilities of research as relevant to human subjects and other organisms, scientific integrity, and understanding of research regulations. This course includes instruction of practical aspects of a career in biological sciences and discussions concerning research protocol and scientific methodology.

BSC 6846 - Sci Writing & Communication (1-2 Credits)

This course focuses on development of professional scientific communication skills as it pertains to scientific writing and presentation. The course is designed to support a variety of writing products including but not limited to abstracts for conference submissions, theses, grant proposals, manuscripts, and public education materials. The course also focuses on development of verbal communication to both professional and public audiences.

BSC 6849 - Found of Grad Studies in Bio (3 Credits)

This course introduces students to the expectations of the Master's of Biology program including guidelines and policies, keys to being successful in graduate school, and offers opportunities for professional development. The course incorporates mentorship development to prepare students to work with undergraduate students both in and out of the classroom. This course serves as the first point of teaching professional development with a focus on developing effective evidence-based pedagogical strategies.

BSC 6900 - Independent Study Biology (1-4 Credits)

Independent study and/or research under direct supervision of a faculty mentor. Topic of study will be determined and agreed upon between the student and faculty member.

BSC 6916 - Research Mentorship (1-4 Credits)

Supervising, advising, and overseeing of original research on topics in the life sciences conducted by undergraduate student(s). Project details are to be planned and chosen by the student in consultation with the undergraduate mentee, the major advisor, and the thesis committee.

Prerequisite(s): BSC 6849

BSC 6932 - Selected Topics in Biology (1-4 Credits)

Courses will be developed based on topics of current or special interest to students or faculty.

BSC 6938 - Seminar in Biology (1 Credits)

This capstone course for the non-thesis MS option will focus on student synthesis of higher-order learning and demonstrate mastery of the subject specialty. Students develop, write, and present a scholarly research project on a topic of their choice that combines knowledge from across courses taken within the degree. Students identify a current research topic in the biological sciences that is relevant to their chosen focus. Students develop a relevant bibliography of peer-reviewed research on the topic. Once approved, students produce a scholarly review based on these references. Students present the conclusions of this scholarly review in seminar format. The presentation and defense serve as the comprehensive exam for the non-thesis M.S. degree.

BSC 6946 - Graduate Internship in Biology (1-4 Credits)

Supervised graduate professional experience in the student's area of focus within the biological sciences.

Attribute(s): WBLI - Work based learning indicator

BSC 6958 - Graduate Journal Club in Bio (0 Credits)

A graduate-level journal club series for students to experience scientific information exchange. This course offers a more informal, less intimidating environment in which to talk with faculty, graduate students and other researchers.

BSC 6972 - Master's Thesis Research (0-6 Credits)

Original research conducted on topics in the life sciences. Project details are to be planned and chosen by the student in consultation with the major advisor and the thesis committee.

BSC 6975 - Thesis Defense Seminar (1 Credits)

The culmination of the degree, students are mentored in writing their thesis research. Student will give an oral presentation of their work followed by a discussion of the research with their committee. Successful defense of the thesis demonstrates mastery of the chosen field of study.

Prerequisite(s): BSC 6972