BIOLOGY (BIOL)

BIOL 0600 - Essentials of Anatomy and Physiology
(1 Credit)
This five-week, modular, online course prepares students for success in Human Biology (BIOL 1070); Human Anatomy & Physiology 1 (BIOL 2201); and, Human Anatomy & Physiology 2 (BIOL 2202). The focus of this course is development of basic skills required for success in higher education: study skills, time management, basic math and language skills. Students learn the essential science background necessary to be successful in life science courses: basic concepts in Biology (biological terminology, cellular structure) and basic concepts in Chemistry (ions, chemical bonding, terminology, and chemical notation).

Lecture: 3 hours

BIOL 1000 - Cell Biology for Technology
(4 Credits)
This biology course is designed to introduce basic biological principles while specifically examining life processes at the cellular level. Topics include cell chemistry, the relationship between cell structure and function, metabolism, molecular genetics and cellular communication. Contemporary cell-related technology, as well as its impact and significance, is emphasized.

Lecture: 3 hours, Lab: 3 hours

Prerequisite(s): (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) and (Math Placement or MATH 0101 or MATH 1200 or MATH 1025 or MATH 1179 or MATH 2111 or MATH 2141 or MATH 2142 or MATH 2243 or MATH 2362) or (Bachelor Degree or higher)

Course completes the following requirements:
Scientific Reasoning
Social & Prof Responsibilities
Lab Science Requirement
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1001 - Introductory Biology: Organismal
(4 Credits)
This course is one part of a two- semester introduction to the fundamentals of biology intended for science majors. However, BIOL 1001 may be taken independently of BIOL 1002. The course investigates biology at the organismal level through the presentation and discussion of biological processes and systems, genetics, evolution, ecology, biodiversity. Additionally, the diversity in form and function of organisms across the tree of life is explored.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (MATH 0500 or MATH 0099 or MATH 0100 or MATH 0600 or MATH 0101 or MATH 8055 or Math Placement) and (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

Course completes the following requirements:
Critical Thinking
Social & Prof Responsibilities
Lab Science Requirement
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1002 - Introductory Biology: Cellular
(4 Credits)
This course is one part of a two-semester introduction to the fundamentals of biology intended for science majors. It may be taken independently of BIOL 1001. The course investigates biology at the cellular level through the presentation of such topics as: the chemistry of the cell, the structure and function of macromolecules and organelles, energy and cell metabolism, photosynthesis, genetics, cell reproduction and differentiation, DNA structure and synthesis, and gene expression.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (MATH 0500 or MATH 0100 or MATH 0101 or MATH 0600 or MATH 8055 or MATH 0099 or Math Placement) and (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

Course completes the following requirements:
Oral Communication
Scientific Reasoning
Lab Science Requirement
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1005 - Biology in the Modern World
(4 Credits)
This course investigates the basic biology needed to understand and make informed decisions about vital issues in today's world, such as biodiversity, pandemic disease, antibiotic resistance, genetic engineering, human population growth, habitat loss, water shortages, and climate change. Note: This course is designed for non-science majors; not open to science majors. This class fulfills four credits of Math/Science General Education requirements.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (Reading Course Placement or ENGL 0700) and (Math Placement or MATH 0500 or MATH 0099 or MATH 8055 or MATH 0101 or MATH 0600 or MATH 0100) or (Bachelor Degree or higher)

Course completes the following requirements:
Scientific Reasoning
Social & Prof Responsibilities
Lab Science Requirement
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1006 - Introduction to Evolution
(3 Credits)
This course provides a basic introduction to biological evolution. No previous courses in biology are required. Topics include Darwin, the scientific evidence for evolution, natural selection and other forces that drive evolutionary change, how new species arise, the fossil record, the geologic time scale, and human evolution. The problems that society faces from the evolution of drug-resistant pathogens will also be explored.

Lecture: 3 hours

Prerequisite(s): (MATH 0500 or MATH 0095 or MATH 0099) and ENGL 0700

BIOL 1007 - Explorations in Biology
(4 Credits)
Targeted toward non-science majors, the course introduces students to core biological concepts and themes including: microorganisms, anatomy and physiology, cellular organization, evolution, and ecology. Using a broad, topical approach, students will gain a greater appreciation of the diversity in form and function of organisms. Linking lectures will tie major concepts together and enable students to apply this knowledge in a practical manner in regards to their health and the environment. Critical thinking in learning and application of principles acquired will be an integral part of this course.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (MATH 0500 or MATH 0099 or MATH 0100 or MATH 0101 or MATH 8055 or Math Placement) and (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

Course completes the following requirements:
Scientific Reasoning
Social & Prof Responsibilities
Lab Science Requirement
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1050 - Humans and the Environment
(3 Credits)
A study of the biological principles key to understanding our relation to the ecosystem, this course focuses on environmental issues such as energy supplies, energy alternatives, forms of pollution, food production, population growth, and natural resource management.

Lecture: 3 hours

Prerequisite(s): ENGL 0700 or Reading Course Placement or Bachelor Degree or higher

Course completes the following requirements:
Written Communication
Critical Thinking
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1060 - Introduction to Permaculture
(4 Credits)
This course introduces the applied science of permaculture: the management of sustainable ecosystems to provide reliable products and services for humans. Permaculture helps secure food systems, decrease resource consumption, reduce waste, revitalize soils, conserve biodiversity, and promote human health. Topics include biology of select animals, plants, algae, & fungi; terrestrial and aquatic community and ecosystem ecology; and core methods of sustainable polyculture. For the lab, with instructor guidance, students design, conduct, and present permaculture field projects.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (MATH 0500 or MATH 0099 or MATH 0100 or MATH 0101 or MATH 8055 or Math Placement) and (ENGL 0850 or ENGL 0890 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

Course completes the following requirements:
Lab Science Requirement

BIOL 1070 - Human Biology
(3 Credits)
This course introduces students to the basic principles of anatomy and physiology necessary for a general understanding of the human body. The relationship between structure and function is emphasized. This course is not a replacement for BIOL 2201 and BIOL 2202.

Lecture: 3 hours

Prerequisite(s): (Math Placement or MATH 0500 or MATH 0099 or MATH 0600 or MATH 8055 or MATH 0100 or MATH 0101) and (Reading Course Placement or ENGL 0700) or (Bachelor Degree or higher)

BIOL 1080 - Introduction to Clinical Procedures
(3 Credits)
Lectures provide an understanding of the theoretical basis and physiological implications of clinical procedures in the medical office and prepare students for further professional training. Laboratory experiences in vital signs, asepsis, sterilization, blood studies and urine studies supplement the lecture material.

Lecture: 2 hours, Lab: 2 hours

Prerequisite(s): BIOL 1070 and (MATH 0500 or MATH 0099 or Math Placement or Bachelor Degree or higher) and (ENGL 0700 or Reading Course Placement or Bachelor Degree or higher)

BIOL 1110 - Introduction to Pharmacology
(1 Credit)
This course provides an introduction to basic pharmacology, terminology and mechanism of drug action. Use, adverse response, special cautions, and interactions of drugs commonly used in dental and medical practices are emphasized.

Lecture: 1 hour

Prerequisite(s): (BIOL 1070 or BIOL 1020) and (MATH 0500 or MATH 0099 or Math Placement) and (ENGL 0890 or ENGL 1002 or Reading Course Placement)

BIOL 1200 - The Human in Health & Disease
(3 Credits)
This course is designed to teach people more about themselves and focus on factors that promote health and cause illness. Evolving topics include cancer, reproductive issues, infectious disease, microbiome health, genetic diseases, nutritional impacts, cardiovascular disease, and neurological conditions.

Lecture: 3 hours

Prerequisite(s): (MATH 0500 or MATH 0099 or Math Placement or Bachelor Degree or higher) and (ENGL 0700 or Reading Course Placement or Bachelor Degree or higher)

Course completes the following requirements:
Written Communication
Social & Prof Responsibilities
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 1300 - Orientation to Biotechnology
(1 Credit)
This course provides an overview of the history and fundamental principles necessary to understand the role of biotechnology in our society. Specific topics are selected to provide examples of applications, ethical considerations and career paths in the field of biotechnology. Students are also introduced to the pathway leading from research and development, to production of a biopharmaceutical product, including the regulatory considerations that are involved.

Lecture: 2 hours

Prerequisite(s): (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) and (MATH 0500 or MATH 0099 or MATH 0100 or MATH 0101 or Math Placement) or (Bachelor Degree or higher)

BIOL 1310 - Introduction to Biotechnology Laboratory Skills
(3 Credits)
This course provides an opportunity for students to learn laboratory skills that are fundamental to successful, efficient and safe practices in a biotechnology research, quality control or production laboratory setting. Students are introduced to methods of measurement, data collection and analysis, solution and media preparation, safe laboratory practices and the practical application of mathematics to these processes. In addition, students are introduced to Good Laboratory Practices (GLP), Good Manufacturing Practices (GMP) and related topics that emphasize the significance of maintaining quality in a biological research or production setting.

Lecture: 1 hour, Lab: 3 hours

Prerequisite(s): (CHEM 1030 or CHMT 8000 or CHMT 1120 or CHMT 1121 (may be taken concurrently)) and (MATH 0600 or MATH 0101 or Math Placement) and (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

BIOL 2001 - Introduction to Neuroscience
(3 Credits)
BIOL 2001 aims to introduce students to the structure and function of the nervous system. Topics include molecular, cellular, physiological, behavioral, and computational mechanisms of the brain, brainstem, spinal cord, and peripheral nerves. Mammalian, insect, and other models are discussed. Topics are covered broadly to develop an appreciation of the wide variety of areas that researchers pursue, as well as introduce the methods that are used in the laboratory as a preparation for BIOL 2262 (Neuroscience Methods).

Lecture: 3 hours

BIOL 2025 - Biology of Trees and Shrubs
(4 Credits)
This course will introduce students to the proper selection, planting and care of new and established trees and shrubs in the landscape. Topics will include basic biology of woody plants, tree identification, pruning, fertilization, abiotic and biotic diseases and their treatment, and safety standards.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement or Bachelor Degree or higher) and (MATH 0095 or MATH 0100 or MATH 0600 or MATH 0101 or MATH 8055 or Math Placement) and (BIOL 1001 or BIOL 1002 or BIOL 1005)

Course completes the following requirements:
Lab Science Requirement

BIOL 2040 - Human Sexuality
(3 Credits)
This course offers an exploration of the physiological, psychological and cultural aspects of human sexuality. Topics include reproductive health, forms and evolution of sexual expression, psychosexual development and the role of sex in the individual's life as well as in society.

Lecture: 3 hours

Prerequisite(s): ENGL 0700 or Reading Course Placement or Bachelor Degree or higher

Course completes the following requirements:
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 2070 - Evolution: A History of Life on Earth
(3 Credits)
This course covers the scientific evidence for evolution, the sources of variation, the role of natural selection, the formation of species and the basis for human evolution. Current scientific research is stressed.

Lecture: 3 hours

Prerequisite(s): (BIOL 1001 or BIOL 1002) and (MATH 1200 or MATH 1700 or MATH 1179 or Math Placement) and (ENGL 0890 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

BIOL 2090 - Genetics
(3 Credits)
This course covers basic concepts of inheritance, variation and evolution in plants and animals, including a survey of Mendelian, molecular, cellular and population genetics.

Lecture: 3 hours

Prerequisite(s): (MATH 1200 or MATH 1700 or MATH 1179 or Math Placement) and (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

BIOL 2130 - Food from the Sea
(3 Credits)
Food from the Sea surveys the production, distribution, and consumption of seafood, and the associated environmental, societal, and economic issues. Directly or indirectly, seafood is an important source of nutrition for most of humanity, and is deeply embedded in the social and economic fabric of Rhode Island and New England. Where possible, examples from local fisheries and aquaculture industry will be used. This course is a broad introduction for students interested in any subject relevant to fisheries and aquaculture in the ocean (Fisheries and Aquaculture Science, Marine Biology, Marine Affairs, etc.) or nutrition and food sustainability (Nutrition, Sustainable Agriculture and Food Systems, etc.).

Lecture: 3 hours, Lab: 0 hours, Other: 0 hours

Prerequisite(s): ENGL 1005 or ENGL 0890

BIOL 2150 - Laboratory in Genetics
(2 Credits)
Selected aspects of genetics are demonstrated using bacteria, fungi, fruit flies and other organisms. Each student must design, carry out and present the result of a project.

Lab: 4 hours

Prerequisite(s): ENGL 0700 or Accuplacer Rdg Test Score and BIOL 2090 or (Bachelor Degree or higher)

BIOL 2201 - Human Anatomy & Physiology I
(4 Credits)
Human anatomy and physiology of the human body is taught in a two semester sequence, using a systems approach. The relationship between form and function is emphasized, both microscopically and gross, at each level of organization. This course provides basic anatomical terminology and homeostatic concepts beginning at the molecular level of organization and progressing through cell biology, histology, the integument, and skeletal, muscular and nervous systems.

Lecture: 3 hours, Lab: 3 hours

Prerequisite(s): (MATH 0500 or MATH 0095 or MATH 8055 or MATH 0099 or MATH 0100 or MATH 0101 or Math Placement) and (ENGL 0890 or ENGL 0950 or ENGL 1002 or Reading Course Placement) or (Bachelor Degree or higher)

Course completes the following requirements:
Information Literacy
Scientific Reasoning
Lab Science Requirement
Mathematics and Science

BIOL 2202 - Human Anatomy & Physiology II
(4 Credits)
This course continues basic anatomical and homeostatic concepts including the endocrine system, the cardiovascular and lymphatic systems, including immunity, the respiratory system, the digestive system and metabolism, the urinary system, and reproductive systems.

Lecture: 3 hours, Lab: 3 hours

Prerequisite(s): BIOL 2201

Course completes the following requirements:
Information Literacy
Scientific Reasoning
Lab Science Requirement
Mathematics and Science
URI/RIC Transfer General Education Transfer Opportunity: Yes

BIOL 2210 - Introductory Microbiology
(4 Credits)
This course involves the study of microorganisms that cause diseases in humans. Topics included are prokaryotic and eukaryotic cell types, growth, control of growth, microbial metabolism, genetics, immunology and microorganisms of medical importance.

Lecture: 3 hours, Lab: 3 hours

Prerequisite(s): BIOL 1020 or BIOL 2202

BIOL 2220 - Introduction to Pathophysiology
(3 Credits)
The course begins by examining the disease process in general, from the etiology of disease at the cellular level to the physiologic changes that occur as the disease moves from incipient stage to full expression. The second half of the course examines the pathogenesis of specific diseases system by system.

Lecture: 3 hours

Prerequisite(s): BIOL 1010 and BIOL 1020

BIOL 2262 - Neuroscience Research Methods
(4 Credits)
BIOL 2262 will teach you the knowledge and tools to solve research questions in neurobiology. Topics covered include approaches in neuroscience, behavioral studies, tissue/cell preparation, histology/microscopy, electrode stimulation and molecular characterization. Some labs will be supplemented with simulations.

Lecture: 3 hours, Lab: 3 hours, Other: 0 hours

Prerequisite(s): BIOL 2001

Course completes the following requirements:
Lab Science Requirement

BIOL 2410 - Biology of Insects
(4 Credits)
This course provides a fundamental understanding of entomology and the role of insects in the environment. Topics include basic insect morphology, physiology, behavior, diversity, and ecology. Special focus is given to beneficial, pest, and invasive insects present in the Northeastern United States.

Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): (ENGL 0950 or ENGL 0890 or ENGL 1002 or Reading Course Placement or Bachelor Degree or higher) and (MATH 0500 or MATH 0095 or MATH 8055 or MATH 0100 or MATH 0101 or Math Placement)

Course completes the following requirements:
Lab Science Requirement

BIOL 2420 - Introduction to Soil Science
(4 Credits)
This course is an introduction to the main topics in soil science. It begins with a basic introduction of important chemical concepts and proceeds to describe the composition, structure, and characteristics of soil. Whenever possible, examples involving the soil types of Rhode Island are used. Throughout the course, the relevance of soil properties to land uses such as agriculture, construction, and wastewater treatment will be emphasized with practical examples. Soil classification, properties, and their applications to land-use decisions will be emphasized through a student project using the public Web Soil Survey database. This course is geared toward students with an interest in environmental management, agriculture, geology, and biology in general.

Lecture: 3 hours, Other: 1 hour

Prerequisite(s): (ENGL 0890 or ENGL 1002 or Reading Course Placement) and (MATH 0099 or Math Placement)

BIOL 2480 - General Microbiology
(4 Credits)
This course offers a look at microbes and particularly bacteria from a biochemical and molecular perspective. Emphasis is placed on microbial physiology and genetics with applications to biotechnology.

Lecture: 2 hours, Lab: 4 hours

Prerequisite(s): (BIOL 1000 or BIOL 1001 or BIOL 1002) and (CHMT 1121 or CHMT 1120 or CHEM 1030)

Course completes the following requirements:
Lab Science Requirement

BIOL 2500 - Applications in Science and Math^
(1 Credit)
This capstone course is intended for students in their final semester of the AS in Science program. It will allow students an opportunity to demonstrate an integration of knowledge and abilities acquired in previous science and mathematics courses with the added intent of having students develop new insights. Students will read selected articles, such as those that come from scientific journals, in a variety of fields and then have the opportunity to collaborate with their peers and hone writing, synthesis and presentation skills in a seminar setting.

Lecture: 2 hours