

Biology (BIO)

Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

BIO 1500 Environmental Science 4 Credit Hours
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

A laboratory science course which will focus through an interdisciplinary investigation on (a) developing an awareness of one's total environment (social, physical, and biological), (b) identifying the cause and perspective of our environmental concerns and, (c) exploring the possible and preferred solutions and strategies to those environmental issues.

BILLABLE CONTACT HOURS: 5

GE Outcomes: Global Understanding and Responsibility

BIO 1511 Life Science 4 Credit Hours
Equivalent: LSC 1510 | GSC 1510

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

The course will cover the basic concepts of biology. These include: the cellular basis of life, metabolic processes, genetics, diversity, evolution and ecology, with human applications. This is a laboratory course intended for non-science majors. **BILLABLE CONTACT HOURS:** 5

GE Outcomes: Scientific Literacy

BIO 1530 Molecular and Cellular Biology 4 Credit Hours
Equivalent: BIO 1510

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: Placement into MAT 1100 or higher.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

The course will cover the molecular and cellular basis of biological processes including metabolism, reproduction, genetics and evolution along with relevant applications of biotechnology. It is expected that students enrolling in this course will have successfully completed both high school biology and chemistry, or equivalent college preparatory work, within the previous five years. This course is the first in a two-semester sequence intended for biology majors. This course includes a laboratory component. **BILLABLE CONTACT HOURS:** 6

GE Outcomes: Scientific Literacy

BIO 1560 Organismal Biology - Biodiversity, Ecology and Evolution 4 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: BIO 1511 or BIO 1530 with a 'C' or better within the last 5 years.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This organismal biology course will introduce the basic scientific principles underlying the biodiversity, ecology and evolution of representative species from various fungi, plant, animal and other eukaryotic taxa. Topics covered will include fundamentals of evolutionary theory; systematics and taxonomic classification; a comparative study of the structure, function and evolutionary relationships among eukaryotic species; and ecological topics including population biology, communities and ecosystems. This course is the second in a two-semester sequence intended for biology majors. This course includes a laboratory component. **BILLABLE CONTACT HOURS:** 6

GE Outcomes: Scientific Literacy

BIO 1570 Microbiology of Health and Disease ... 3 Credit Hours
Equivalent: BIO 1710

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: Satisfactory score on the OCC Biology Proficiency Test; or a grade of 'C' or better in BIO 1511 or BIO 1530 (or equivalent college transfer course).

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

Student will study the general nature and behavior of microbes as applied to human health and disease, including the dynamics of normal microbiota, the infectious process, microbes as causative agents of disease, host parasite relationships and development of immunity. Particular emphasis will be placed on the study of various modes of transmission and proper management to prevent spreading of infectious disease. This natural science course is also required for many health-related fields. This is a non-lab course. **BILLABLE CONTACT HOURS:** 3

GE Outcomes: Scientific Literacy

BIO 1600 Human Structure and Function 3 Credit Hours
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

This course is designed to give the student a basic understanding of the human body. Visual demonstrations and a variety of organ and system models will be used during lectures to illustrate the structural and functional organization of the human body. This natural science course is also required for many health profession and technology programs. This is a non-lab course. **BILLABLE CONTACT HOURS:** 3

GE Outcomes: Scientific Literacy

BIO 1650 Human Anatomy and Physiology for the Emergency Medical Services Program 5 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: Completion of EMS 1010 EMS 1020 and EMS 1100 each with a grade of 'C' or better.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This course is designed to meet the needs of students in the Emergency Medical Services program. This course reinforces the fundamentals of human anatomy and physiology for all major body systems with a detailed laboratory experience. The goal of this course is to provide a detailed survey of human anatomy and physiology to students in the Emergency Medical Services program. Students will learn basic terminology associated with human anatomical structures and physiological processes. Students will apply terminology and physiological function through the use of models, plaques, microscopy, dissection and experimentation in lab. This course does not meet the requirements for most other health professional programs. BILLABLE CONTACT HOURS: 7

BIO 2540 General Zoology 4 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: BIO 1530 with a grade of 'C' or better within the last 5 years.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

The course will explore representative protozoa and members of the animal kingdom, emphasizing their metabolism, anatomical structure and function, reproduction and development, evolution, diversity and ecology. The laboratory component of this course, which may include animal dissection, involves the application of the terminology and concepts presented in lecture. BILLABLE CONTACT HOURS: 6

GE Outcomes: Scientific Literacy

BIO 2560 Principles of Genetics 3 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: Placement into MAT 1125 or higher; BIO 1530 with a grade of 'C' or better or consent of instructor.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

The course will examine inheritance and expression at the gene, chromosome, cell, organismal, and population levels, with an emphasis on statistical analysis. Genetic mutations, mechanisms of gene action, and the nature of genetic material will be evaluated. This is a non-laboratory course. BILLABLE CONTACT HOURS: 3

BIO 2601 Special Topics in Biology 1-4 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: BIO 1500 BIO 1530 or BIO 1511.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This course will explore a special topic of current interest in biology. Such topics may include subjects in anatomy, physiology, botany, zoology, microbiology, environmental science or other areas of the life sciences. In studying these topics, the student will be introduced to current concepts and their applications. The course will include a lecture component and may also include laboratory experience, field trips or travel when appropriate. Refer to the specific section using OCC's online system for current topics. BILLABLE CONTACT HOURS: 1 - 4

BIO 2602 Special Topics in Biology: Biodiversity in the Tropics 2 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: BIO 1500 BIO 1530 or BIO 1511.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

Biodiversity in the Tropics. BILLABLE CONTACT HOURS: 2

BIO 2603 Special Topics in Biology 1-4 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: BIO 1500 BIO 1530 or BIO 1511.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This course will explore a special topic of current interest in biology. Such topics may include subjects in anatomy, physiology, botany, zoology, microbiology, environmental science or other areas of the life sciences. In studying these topics, the student will be introduced to current concepts and their applications. The course will include a lecture component and may also include laboratory experience, field trips or travel when appropriate. Refer to the specific section using OCC's online system for current topics. BILLABLE CONTACT HOURS: 1 - 4

BIO 2604 Special Topics in Biology 1-4 Credit Hours

ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement in ESL 2520.

Prerequisite: BIO 1500 BIO 1530 or BIO 1511.

Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This course will explore a special topic of current interest in biology. Such topics may include subjects in anatomy, physiology, botany, zoology, microbiology, environmental science or other areas of the life sciences. In studying these topics, the student will be introduced to current concepts and their applications. The course will include a lecture component and may also include laboratory experience, field trips or travel when appropriate. Refer to the specific section using OCC's online system for current topics. BILLABLE CONTACT HOURS: 1 - 4

BIO 2630 Human Anatomy and Physiology I4 Credit Hours**Equivalent:** BIO 1630 | BIO 1610**ESL Placement Level:** For English-as-a-Second-Language (ESL) students, placement in ESL 2520.**Prerequisite:** Satisfactory score on the OCC Biology Proficiency Test; or a grade of 'C' or better in BIO 1511 or BIO 1530 (or equivalent college transfer course).**Note:** Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This course will analyze the structural and functional relationships of the human body at the biochemical, cellular, tissue, organ and system level. Emphasis will be placed on the identification of the major anatomical parts and physiological activities of the integumentary, skeletal (including articulations), muscular, and nervous (including special senses) system. The laboratory component of this course involves application of the concepts presented in lecture. This natural science course is also required for many health-related fields. BILLABLE CONTACT HOURS: 6

BIO 2640 Human Anatomy and Physiology II4 Credit Hours**Equivalent:** BIO 1640 | BIO 1620**ESL Placement Level:** For English-as-a-Second-Language (ESL) students, placement in ESL 2520.**Prerequisite:** BIO 2630 with a grade of 'C' or better or consent of department discipline designee.**Note:** Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

Utilizing and building upon information covered in Human Anatomy and Physiology I (BIO 2630), this course will identify the major anatomical parts of the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems of the human body and relate their structures to the physiological activities of these systems. This course will also analyze the homeostatic effects of fluids, electrolytes, acids and bases throughout the integrated human body. The laboratory component of this course involves application of the concepts presented in lecture. This natural science course is also required for most health profession and technology programs such as: dental hygiene, respiratory therapy, surgical technology and nursing. BILLABLE CONTACT HOURS: 6

BIO 2660 Pathophysiology3 Credit Hours**Equivalent:** BIO 2250**ESL Placement Level:** For English-as-a-Second-Language (ESL) students, placement in ESL 2520.**Prerequisite:** BIO 1650 or BIO 2640 with a grade of 'C' or better within the last 5 years or consent of discipline or department designee.**Note:** Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

This course teaches the fundamentals of pathophysiology as it relates to care of the chronic and emergent patient in home, pre-hospital, and hospital settings. Content includes an overview of normal body functions, the immune system and immune response, discussion of specific diseases, cellular injury and death, shock, and how disease and injury alter normal function. This course is intended to meet the requirements of the EMS National standard Curriculum on pathophysiology and is part of the Advanced EMT program. BILLABLE CONTACT HOURS: 3

BIO 2710 Microbiology 4 Credit Hours**ESL Placement Level:** For English-as-a-Second-Language (ESL) students, placement in ESL 2520.**Prerequisite:** Both BIO 1530 and CHE 1000 or higher (or equivalent college transfer course) with a grade of 'C' or better or consent of department discipline designee.**Note:** Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

The course concepts include microbial cell biology, microbial genetics, interactions and impact of microorganisms and humans, interactions and impact of microorganisms in the environment, and microbial diversity. Laboratory incorporates basic techniques and exercises to investigate course concepts. This natural science course is also required for many health profession and technology programs such as: respiratory therapy, surgical technology and nursing. BILLABLE CONTACT HOURS: 6