

# BIOLOGY (BIO)

## BIO 106 - Human Biology

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

A survey of human anatomy and physiology with a primary focus on health and disease. Topics to be discussed will include the cell structure, simple chemistry of biology, homeostasis, the organ systems, genetics, evolution, nutrition, exercise physiology, cancer, heart disease, immunology, AIDS, and other topics of current interest. This course does not meet the requirements for the Nursing program. Consult an advisor before enrolling. Group 1 lab course. Critical Thinking - Direct.

Recommended Prerequisite(s): ENG 111, MTH 100

Corequisites: BIO 106L

## BIO 106L - Human Biology Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 106 for course description.

Corequisites: BIO 106

## BIO 108 - Plant Biology

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

In this class, we will examine some of the major ideas biologists use to study the living world. These will include the scientific method, biology of cells, and genetics. The emphasis in this course will be on: plant anatomy, the life cycle of plants, growth and its regulation, metabolism, and reproduction. Hands-on exercises and experiments will allow the student to observe these principles, and practice the skills required to cultivate and propagate plants. Group 1 lab course. Quantitative Reasoning.

Recommended Prerequisite(s): ENG 111, MTH 100

Corequisites: BIO 108L

## BIO 108L - Plant Biology Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 108 for course description.

Corequisites: BIO 108

## BIO 110 - Essential Biology

**Credit Hours: 4, Contact Hours: 5**

Division: Science Math

Essential Biology is geared toward the non-major. The course will cover broad areas of biology, engage the student in how biology relates to their own life, and how science and society interact. Core concepts covered include: Evolution, Structure and Function, Information Flow, Exchange and Storage, Pathways and Transformations of Energy and Matter, and Living Systems. Group 1 lab course. Critical Thinking - Direct.

Recommended Prerequisite(s): ENG 111, MTH 100

Corequisites: BIO 110L

## BIO 110L - Essential Biology Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 110 for course description.

Corequisites: BIO 110

## BIO 115 - General Biology I

**Credit Hours: 4, Contact Hours: 6**

Division: Science Math

An introduction to fundamental concepts in biology that include investigations and discussions in ecology, evolution and biodiversity. Laboratory includes field work and investigative exercises which illustrate discussion topics and real world applications. Students will be participating in novel research projects. Emphasis is placed on biological literacy. Biology 115 and 116 can be taken in either order. Group 1 lab course. Group 1 course. Quantitative Reasoning.

Recommended Prerequisite(s): ENG 111, MTH 111

Corequisites: BIO 115L

## BIO 115L - General Biology I

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 115 for course description. Quantitative Reasoning.

Corequisites: BIO 115

## BIO 116 - General Biology II

**Credit Hours: 4, Contact Hours: 6**

Division: Science Math

An introduction to fundamental concepts in biology that includes investigations and discussions of cellular biology and the genetic basis for life. Laboratory includes field work and investigative exercises which illustrate discussion topics. Students will be participating in novel research projects. Emphasis is placed on biological literacy. Biology 115 and 116 can be taken in either order. Group 1 lab course. Group 1 course. Quantitative Reasoning.

Recommended Prerequisite(s): ENG 111, MTH 111

Corequisites: BIO 116L

## BIO 116L - General Biology II Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 116 for course description. Quantitative Reasoning.

Corequisites: BIO 116L

## BIO 208 - Microbiology

**Credit Hours: 4, Contact Hours: 6**

Division: Science Math

This course reviews the two types of cells (prokaryotic and eukaryotic). Methods of microbial pathogenicity are addressed. The field of epidemiology is briefly explored. Microbial anatomy, physiology, and diversity are introduced. The course also explores how bacteria grow and how that growth is controlled. Metabolism, diversity, and culturing of growth are also discussed. Microbiological disease pathology and the role of microbes in food production are also discussed. The course goes into bacterial genetics and the role it plays in our lives. Laboratory work culminates with using all the skills learned in the lab to identify the contents of an unknown bacterial solution. Group 1 lab course. Group 1 course. Quantitative Reasoning.

Required Prerequisite(s): Completion of any 100-level BIO course.

Recommended Prerequisite(s): ENG 111, MTH 111

Corequisites: BIO 208L

## BIO 208L - Microbiology Lab

**Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 208 for course description.

Corequisites: BIO 208

**BIO 215 - Genetics****Credit Hours: 3, Contact Hours: 3**

Division: Science Math

A comprehensive treatment of classical genetics will be covered in addition to an in-depth study of molecular genetics, research techniques and applications of recombinant DNA technology. A major emphasis will be on the current results of genetic research as it applies to the molecular mechanisms of inheritance, and other topics such as gene therapy, cloning stem cell research and genetically modified organisms. Population genetics will also be covered. Group 1 course. Quantitative Reasoning.

Required Prerequisite(s): Completion of any 100-level BIO course.

Recommended Prerequisite(s): ENG 111, MTH 111

**BIO 220 - Nutrition in Human Health****Credit Hours: 3, Contact Hours: 3**

Division: Science Math

This course is an exploration of the fundamentals of nutrition: energy nutrients, vitamins and minerals. Function and sources of each is presented, as well as the role each plays in maintaining health. Students complete their own Food Intake Record and use this information throughout the semester so as to better understand human nutrition. In addition, study is made of the role nutrition along with other lifestyles plays in the prevention and protection from disease. Discussion also includes the relationship between nutrition and fitness. Group 2 course. Critical Thinking - Direct.

Recommended Prerequisite(s): ENG 111, MTH 111 or MTH 120, and completion of any 100-level BIO course

**BIO 227 - Human Anatomy & Physiology I****Credit Hours: 4, Contact Hours: 6**

Division: Science Math

This course will include an introduction to cells, histology, biochemistry, and homeostasis. In addition, the following systems will be discussed: integumentary, skeletal, muscle, and nervous. Lecture will be accompanied by lab work and applications, which will stress the anatomy, histology and function of these organ systems. Group 1 lab course. Group 1 course. Students enrolling in BIO 227 who have not met the recommended prerequisites should plan on additional study time. Quantitative Reasoning.

Required Prerequisite(s): MTH 111 or MTH 120; ENG 11/111 or ENG 111 may be taken concurrently.

Recommended Prerequisite(s): CHM 101 or HAH 101 or completion of any 100-level Biology course

Corequisites: BIO 227L

**BIO 227L - Human Anatomy & Physiology I Lab****Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 227 for course description.

Corequisites: BIO 227

**BIO 228 - Human Anatomy & Physiology II****Credit Hours: 4, Contact Hours: 6**

Division: Science Math

This is the second part of a two-semester course. The second semester will continue major systems in the body including: the endocrine system, cardiovascular system, lymphatic and immune system, respiratory system, digestive system, metabolism, urinary system, fluid balance, reproduction and inheritance. Lecture will be accompanied by lab work, which will stress the anatomy and histology of these organ systems.

Group 1 lab course. Group 1 course. Quantitative Reasoning.

Required Prerequisite(s): BIO 227, BIO 227L; MTH 111 or MTH 120; ENG 11/111 or ENG 111

Corequisites: BIO 228L

**BIO 228L - Human Anatomy & Phys II Lab****Credit Hours: 0, Contact Hours: 0**

Division: Science Math

See BIO 228 course description.

Corequisites: BIO 228

**BIO 240 - Normal and Clinical Nutrition****Credit Hours: 3, Contact Hours: 3**

Division: Science Math

Nutrition is considered from a strong biological point of view. Discussions will include a brief overview of principles of normal nutrition and then will proceed to how these principles apply to cause and treatment of specific disease states and the nutrition care process required. Group 2 course. Critical Thinking - Direct.

Required Prerequisite(s): MTH 111 or MTH 120

Recommended Prerequisite(s): BIO 227, ENG 111

**BIO 255 - Pathophysiology****Credit Hours: 4, Contact Hours: 4**

Division: Science Math

This course covers the etiology, progression, and treatment of disease in the human body. Cellular and tissue structure and function are addressed along with the role of the immune system in body defenses. Disorders and diseases for each body system are covered, including investigation of clinical case studies of pathophysiology. Group 1 course. Quantitative Reasoning.

Required Prerequisite(s): BIO 228, BIO 228L with grade of 2.0 or better.

Recommended Prerequisite(s): BIO 208, ENG 111, HNR 107

**BIO 268 - Biochemistry****Credit Hours: 3, Contact Hours: 3**

Division: Science Math

This course is a study of the basic fundamentals of the chemical composition of living matter with application of concepts to normal and abnormal human function. Structure and function of proteins, lipids, carbohydrates and nucleic acids will be covered as well as their metabolic interrelationships. The course also covers the most current biochemical techniques, and an investigation of molecular genetics and published findings in the field of biochemistry. Group 1 course. Critical Thinking - Direct.

Required Prerequisite(s): CHM 101, CHM 101L

Recommended Prerequisite(s): BIO 227, BIO 227L, ENG 111, MTH 111 or MTH 120

**BIO 293 - Biology Study Abroad****Credit Hours: 1, Contact Hours: 1**

Division: Science Math

In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding biology non-trip course.

This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness.

The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.

Required Prerequisite(s): any NMC biology, geology, or environmental science course.