

# BIOLOGY (BI)

## **BI 101 General Biology: Cells & Genes (4 Credits)**

**Recommended preparation:** MTH 60 or MTH 98 or placement into Math level 10.

Designed to fulfill general education requirements, this course is intended for non-major students whose program requires biology courses.

Centers on concepts of unity of living organisms including evolution, biochemistry, cell biology genetics and development. Need not be taken in sequence.

## **BI 102 General Biology: Evolution (4 Credits)**

**Recommended preparation:** MTH 60 or MTH 98 or placement into Math level 10.

Designed to fulfill general education requirements, this course is intended for non-major students whose program requires biology courses. Focus is on concepts of biological diversity including the evidence for and mechanisms of evolution, sexual selection, and adaptations to local environments. Need not be taken in sequence. This course includes animal dissection.

## **BI 103 General Biology: Ecology (4 Credits)**

**Recommended preparation:** MTH 60 or MTH 98 or placement into Math level 10.

Designed to fulfill general education requirements, this course is intended for non-major students whose program requires biology courses. Focus is on ecological concepts including interactions between organisms and the abiotic environment, co-evolutionary adaptations, and Central Oregon flora and/or fauna. Scheduled labs may include outdoor field trips. Need not be taken in sequence.

## **BI 105 Human Biology for Health Science Careers (4 Credits)**

Outlines anatomical structures and functions of the human body. Examines roles and interrelationships of body systems across the lifespan and identifies medical terminology for selected organs and function. Prepares students to enter Licensed Massage Therapist, Medical Assisting, Pharmacy Technician, and Health Information Management programs at COCC.

## **BI 108 Introduction to Human Genetics (4 Credits)**

Designed for non-science majors and introduces students to basic principles of genetics and genetic technologies applied to human health and human affairs. Topics include classical (Mendelian) inheritance, complex inheritance, inherited disorders, analysis of pedigrees, gene structure and gene expression, epigenetic effects on gene expression, sex determination and the genetics of cancer. Some technologies introduced include: the use of DNA in genealogy and forensic biology, gene-editing technologies, and reproductive cloning technologies.

## **BI 115 Scientific Thinking with Lab (4 Credits)**

Introduces the language and process of the scientific method and scientific studies. Provides tools to evaluate scientific information, including identifying pseudoscience and unethical uses of science. Promotes critical evaluation of scientific data and effective science communication. Labs offer students hands-on exploration of scientific inquiry.

## **BI 120 Introduction to the Human Body (4 Credits)**

Provides an introduction to how the human body works, including organs, the major body systems, and foundational information about diseases and disorders. Labs offer students hands-on learning with anatomical models, animals tissues, and human cadavers. This course is intended for non-biological science majors.

## **BI 142 Introduction to Marine Biology (4 Credits)**

Examines the physical, chemical, and biological aspects of the marine environment with emphasis on the ecology, biodiversity, sustainability, and conservation of marine resources.

## **BI 199 Selected Topics: Biology (1-5 Credits)**

Provides a learning experience in biology not currently available; this course is in development to be proposed as a permanent course.

## **BI 202 General Botany (4 Credits)**

Studies plant anatomy, human interactions with plants, and especially plant taxonomy within an evolutionary framework. Focuses on flowering plant families common in Central Oregon and identification using taxonomic keys.

## **BI 221Z Principles of Biology: Cells (5 Credits)**

**Prerequisites:** WR 065 or WR 121Z or minimum placement Wr/Comm Level 7.

**Prerequisites with concurrency:** CH 104 or (CH 221Z and CH 227Z).

Explores fundamental biological concepts and theories about the cellular and molecular basis of life including cell structure and function, metabolism, genetic basis of inheritance and how information flows from DNA to proteins, with a focus on the iterative process of science. Intended for science majors.

## **BI 222Z Principles of Biology: Organisms (5 Credits)**

**Prerequisites:** BI 221Z.

Explores fundamental biological concepts and theories about the structure and function of diverse organisms (including plants and animals), evolution and development, transformation of energy and matter, and body systems at a multicellular organismal level. Intended for science majors.

## **BI 223Z Principles of Biology: Ecology and Evolution (5 Credits)**

**Prerequisites:** MTH 095 (or higher, or minimum placement Math Level 16); and (choose one of WR 065, WR 121Z, or minimum placement Wr/Comm Level 7).

Explores the unity and diversity of life through evolutionary mechanisms and relationships, and adaptation to the environment. Examines population, community, and ecosystem ecology. Intended for science majors.

## **BI 231 Human Anatomy and Physiology I (4 Credits)**

**Prerequisites:** WR 065 or WR 121Z or minimum placement Wr/Comm Level 7.

Examines the structure and function of the human body utilizing a systems approach. Emphasizes body organization, cells, tissues, as well as microscopic and gross anatomy along with the functional roles of the integumentary, skeletal and muscular systems, and concludes with nerve cells and tissue. Concurrent labs include hands-on dissections of a variety of tissues, organs, rats, fetal pigs and/or cats. First course of a sequence for students in pre-nursing and other pre-professional health programs. This course includes animal dissection and cadaver observation.

**BI 232 Human Anatomy and Physiology II (4 Credits)**

**Prerequisites:** BI 231.

Continuation of examination of the structure and function of the human body utilizing a systems approach with an emphasis on anatomical and physiological relationships between nervous, endocrine and cardiovascular systems. Concurrent labs include hands-on dissections of a variety of tissues, organs, fetal pigs and/or cats. For students in pre-nursing and other pre-professional health programs. This course includes animal dissection and cadaver observation.

**BI 233 Human Anatomy and Physiology III (4 Credits)**

**Prerequisites:** BI 232.

Continuation of examination of the structure and function of the human body utilizing a systems approach. BI 233 emphasizes the anatomical and physiological relationships between the lymphatic/immune, respiratory, digestive, urinary, and reproductive systems. Concurrent labs include hands-on dissections of a variety of tissues, organs, fetal pigs and/or cats. For students in pre-nursing and other pre-professional health programs. This course includes animal dissection and cadaver observation.

**BI 234 Microbiology (4 Credits)**

**Prerequisites:** WR 065 or WR 121Z or minimum placement Wr/Comm Level 7 and (BI 101 or BI 221Z or BI 231).

Learn the characteristics and disease-causing features of microorganisms, especially the bacteria and viruses that cause serious infectious diseases in humans. Covers defense mechanisms against infections and disease, and the development of immunity against future infections. The mechanisms of action of certain classes of anti-microbial drugs are discussed. Also covers some of the historically-common human infections and diseases. Designed especially for students in nursing, pre-pharmacy and other pre-professional health programs.

**BI 280 Co-op Work Experience Biology (1-4 Credits)**

**Prerequisites:** instructor approval.

Provides experience in which students apply previous biology classroom learning in an occupational setting. Credits depend on the number of hours worked. Repeatable for credit. P/NP grading.

**BI 298 Independent Study: Biology (1-6 Credits)**

**Prerequisites:** Instructor approval required.

**Recommended preparation:** Prior coursework in the discipline.

Individualized, advanced study in biology to focus on outcomes not addressed in existing courses or of special interest to a student. P/NP grading.

**BI 299 Selected Topics: Biology (1-5 Credits)**

This course is in development.