BIOLOGY

Biology is the study of life across molecular, cellular, organismal, ecological, and evolutionary scales. Core concepts include evolution, genetics, the connections between structure and function, transformations of energy and matter, and the development of emergent properties in living systems. The study of biology develops the ability to apply the process of science and to solve biological problems with quantitative reasoning, models, and simulations. Biologists communicate and collaborate with other disciplines and understand the relationship between science and society. Careers in research, genetics, biotechnology, plant sciences, zoology, environmental science, education, human medicine, veterinary medicine, and dentistry are all possibilities for biology graduates.

See the Biology page for program and contact information.

Programs

Transfer

Associate of Arts Oregon Transfer

- Biological Sciences - Associate of Arts Oregon Transfer (AAOT)
- Dental Hygiene - Associate of Arts Oregon Transfer (AAOT)
- Pre-Dentistry, Pre-Medicine, Pre-Veterinary - Associate of Arts Oregon Transfer (AAOT)

Courses

BI 101 General Biology: Cells & Genes (4 Credits)
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)
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)
Designed to fulfill general education requirements, this courses 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 Essentials of Human Biology (3 Credits)
Introductory human biology course covering structure and function of the body. Topics include relevant terminology, selected anatomical structures, normal function of human body systems, as well as the impact of selected pathological processes and age. Designed for Allied Health programs.

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 114 Science Literacy (3 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.

BI 121 Anatomy and Function I (4 Credits)
Covers body organization, the cell, skin, blood, heart and circulation, immunity, respiration, bones and skeletal muscles. Designed for pharmacy technician, medical assisting and massage therapy programs. Lecture and lab are taken simultaneously; they are not offered as separate classes. Preserved animal tissues are used in some labs.

BI 122 Anatomy and Function II (4 Credits)
Recommended preparation: BI 121.
Covers the nervous system, eyes, ears, reproduction, genetics, digestion, urinary system, hormones and diabetes. Designed for pharmacy technician, medical assisting and massage therapy programs. Lecture and lab are taken simultaneously; not offered as separate classes. Preserved animal tissues are used in some labs.

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 188 Special Studies: Biology (1-6 Credits)
Explores topics of current interest in the discipline. P/NP grading.

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)
Recommended preparation: At least one previous biology course (BI 101, 102, 103, 211, 212, 213).
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 211 Principles of Biology (5 Credits)
Prerequisites: WR 065 or WR 121 or minimum placement Wr/Comm Level 7.
Prerequisites with concurrency: CH 104 or CH 221.
Introduces basic principles common to all living organisms. Emphasizes the relationship between structure and function at the molecular and cellular levels of life. Emphasizes the structure of macromolecules that make up the cell. Explores the evolution of cellular morphology and the chemical processes of cellular function. Explores the genetic basis of evolution and how genetic information flows from DNA to RNA and from RNA to proteins. Designed for majors in the life sciences. BI 211 must be taken before BI 212 and BI 213. Living animals (insects) will be studied and processed in this class.

BI 212 Principles of Biology (5 Credits)
Prerequisites: BI 211.
Emphasizes transformations of energy and matter, systems level biology, and the structure and function of ecosystems. Studies the interrelationships between all forms of life and their environment. Emphasizes aspects of plant morphology and physiology that influence ecosystem function. Designed for majors in life sciences as well as those pursuing botany. Field Trips may be required.

BI 213 Principles of Biology (5 Credits)
Prerequisites: BI 211.
Examines evolutionary biology as well as animal diversity and systematics, morphology and physiology. Designed for majors in life sciences. This course includes animal dissection.

BI 221 Principles of Biology: Cells (5 Credits)
Prerequisites: WR 065 or WR 121 or minimum placement Wr/Comm Level 7.
Prerequisites with concurrency: CH 104 or CH 221.
Introduces fundamental biological concepts and theories about the chemical and molecular basis of life, structure and function, transformation of energy and matter, and information flow at a cellular and molecular level.

BI 222 Principles of Biology: Organisms (5 Credits)
Prerequisites: BI 211 or BI 221.
Introduces fundamental biological concepts and theories about plant and animal physiology, evolution, structure and function, transformation of energy, and matter and systems at an organismal level.

BI 223 Principles of Biology: Populations (5 Credits)
Prerequisites: BI 211 or BI 221.
Introduces fundamental biological concepts and theories about diversity, evolution, and ecology, specifically evolutionary relationship, transformation of energy and matter, information flow, and systems at a population level or above.

BI 231 Human Anatomy and Physiology I (4 Credits)
Prerequisites: WR 065 or WR 121 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 121 or minimum placement Wr/Comm Level 7 and (BI 101, or BI 211, or BI 221 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. P/NP grading.

BI 288 Special Studies: Biology (1-4 Credits)
Explores topics of current interest in the discipline.

BI 298 Independent Study: Biology (1-4 Credits)
Prerequisites: Instructor approval required.
Recommended preparation: Prior coursework in the discipline.
Individualized, advanced study in [insert subject] 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.

FN 188 Special Studies: Foods and Nutrition (1-4 Credits)
Explores topics of current interest in the foods and nutrition discipline.

FN 199 Selected Topics: Foods & Nutrition (1-4 Credits)
Provides a learning experience in foods and nutrition not currently available; this course is in development to be proposed as a permanent course.

FN 225 Human Nutrition (4 Credits)
Introduces the science of nutrition, stressing characteristics of nutrients and their food sources. Examines digestion, absorption, and metabolism of nutrients. Includes individualized diet analysis and current-interest topics like weight management and some disease therapies. Emphasizes use of scientific research criteria for evaluation of current nutrition articles.

FN 288 Special Studies: Foods and Nutrition (1-4 Credits)
Explores topics of current interest in the foods and nutrition discipline.

FN 298 Independent Study: Foods and Nutrition (1-4 Credits)
Prerequisites: Instructor approval required.
Recommended preparation: Prior coursework in the discipline.
Individualized, advanced study in [insert subject] to focus on outcomes not addressed in existing courses or of special interest to a student. P/NP grading.

FN 299 Selected Topics: Foods & Nutrition (1-4 Credits)
Provides a learning experience in foods and nutrition not currently available; this course is in development to be proposed as a permanent course.