

Biology

BI 101 Concepts of Biology

Nature and organization of living organisms, metabolism, inheritance, and development emphasizing biological/chemical relationships. Laboratory work required. Not applicable toward major. Credit cannot be obtained in both BI 101 and BI 151. Interconnected: Natural Science.

BI 117 Environmental Biology

Introduction to the study of environmental biology using scientific reasoning to analyze local habitats and develop plans for their long-term maintenance and conservation. Extensive field study exercises. Project-oriented. Laboratory work required. Extensive use of computer-based resources. Not applicable toward major. Scientific Reasoning. Fall Term. Fee.

BI 120 Science of Water

Identical with PHY 120. Investigation of physical and chemical properties of water as applied to geological, meteorological, ecological phenomena. Multidiscipline science course. Project-based. Laboratory work required. Interconnected: Natural Science. Fee. May Term even years.

BI 130 Drugs and Personal Health

Introduction to structure, function, disease, heredity. Pharmacological, physiological, behavioral phenomena associated with drug use. Laboratory work required. Not applicable toward major. Interconnected: Natural Science. Fall Term. Prerequisite: Scientific Reasoning.

BI 131 Biology of Ordinary Things

Observations of ordinary phenomena connected to basic biological and chemical concepts. Development of explanatory models using various forms of scientific representations. Laboratory work required. Not applicable toward major. Recommended for elementary education majors. Interconnected: Natural Science.

BI 132 Extreme Biology

Examination of the chemical and biological processes required for life, the adaptations of these processes in organisms that live in extreme environments, and the evolution of such organisms. Laboratory work required. Not applicable toward major. Interconnected: Natural Science. Fall Term.

BI 133 How Animals Work

An introduction to the anatomy, physiology and diversity of animals. Particular emphasis placed on the physical problems that nature's environments present to animals. Laboratory work required. Not applicable toward major. Interconnected: Natural Science. Winter Term.

BI 135 Biology of the Mind

Identical with PSY 135. Introduction to the study of the brain. Emphasis on the neural basis of behavior and cognition. Laboratory work required. Not applicable toward biology major. Interconnected: Natural Science.

BI 151 Biology I: Ecosystems, Cells, and Evolution

Introductory course providing a background in ecosystems, cell biology, evolution, and genetics with a laboratory experience that produces skills necessary for success in biology. Recommended for science majors. Credit cannot be obtained in both BI 101 and BI 151. Scientific Reasoning. Fall Term.

BI 152 Biology II: Phylogeny, Structure, and Function

Evolutionary survey of the structure and function of all levels of life. Laboratory work required. Winter Term. Prerequisite: BI 151.

BI 195, 295, 395, 495 Special Topics

Topics and credit vary. See course schedule.

BI 202 Human Anatomy and Physiology

Physical, structural, and functional features of human tissues, organs, systems. Laboratory work required. Primarily for physical education, fitness management, and music therapy majors. Credit cannot be obtained in both BI 202 and BI 311-BI 312. Winter Term. Prerequisite: BI 101, BI 130, BI 131, BI 132, BI 133, BI 135, or BI 151.

BI 204 Conservation of Natural Resources

Principles of natural resource management (soils, forests, water, wildlife). Laboratory work emphasizes resource management strategies and identification of regional plants and animals. Laboratory work required. Fall Term even years. Fee. Prerequisite: BI 117 or BI 151.

BI 205 Field Biology

BI 205C Oregon Coast

Oregon State Marine Science Center, Newport, Ore., and western wildlife areas. Laboratory work required. Writing intensive. P/D/F only. May Term. Fee. Prerequisite: BI 152 and instructor approval.

BI 205E Caribbean

Biology and ecology of coral reef and rain forest. Laboratory work required. Writing intensive. P/D/F only. May Term. Fee. Prerequisites: BI 152 and instructor approval.

BI 206 Ecology of Guyana and Trinidad I (½ course credit)

Ecology of the Neotropics, including rain forest and savanna environments. Structure of ecosystems, interrelationships of plants and animals, issues of resource management. Required to receive interconnected credit for BI 216. Winter Term even years. Fee. Corequisite: GM 206.

BI 207 Vertebrate Ecology of the Prairie

Field biology course. Introduction to higher vertebrates (mammals and birds) of North American grassland ecosystems with emphasis on tall and mixed grass prairies. Focus on ecology and conservation. Extensive field work required. May Term even years. Fee. Prerequisite: BI 152 or instructor approval.

BI 209 Ecology

Introduction to the ecology of plants and animals. Cycling of elements, interrelationships of organisms, energy relationships,

structure of ecosystems, communities and their distribution. Laboratory work and field trips required. Fall Term odd years. Fee. Prerequisite: BI 152.

BI 211 Genetics

Mendelian genetics with focus on the molecular-biochemical nature of inheritance. Laboratory work with drosophila, computer simulations, nucleic acid analysis. Laboratory work required. Winter Term. Interconnected: Natural Science. Prerequisite: BI 151.

BI 216 Ecology of Guyana and Trinidad II (½ course credit)

Off-campus study in the Neotropics. Emphasis on ecological fieldwork in rainforests and savannas in Guyana and Trinidad. Laboratory work required. Interconnected: Natural Science. Requires BI 206 to receive interconnected credit. P/D/F only. May Term even years. Fee. Prerequisite: BI 206, GM 206. Corequisite: GM 216.

BI 221 Cell Biology

Cellular structure and composition will be used to understand the cellular functions of reproduction, metabolism, communication, movement, and transport. Laboratory provides basic experience in cell biology techniques. Not recommended for students who have completed BI 311-BI 312, or CH 325. Fall Term. Prerequisite: BI 151.

BI 250 Introductory Research (¼ course credit)

Experience in hands-on laboratory or field research. Not applicable toward biology major. P/D/F only. May repeat for a maximum of ½ course credit. Prerequisite: instructor approval.

BI 281, 381 Field Experience (variable course credit)

Supervised exploratory experience outside the classroom. Application of academic learning to a practical experience. Not applicable toward major. P/D/F only. Usually arranged May or Summer Term. Possible off-campus costs. Prerequisite: department approval.

BI 301 Advanced Plant Biology

Plant morphology, physiology and ecology of algae and fungi. Laboratory and field methods. Prerequisite: BI 152.

BI 304 Developmental Biology

Basic principles underlying development. Formation of germ cells, fertilization, growth, differentiation, control of development. Laboratory work emphasizes observational and experimental approaches to the developmental process in several organisms. Fall Term. Prerequisites: BI 152 and BI 211 or instructor approval.

BI 305 Microbiology

Survey of microorganisms with emphasis on bacteria. Taxonomy, morphology, metabolism, genetics, ecology of the bacteria. Nature of infection and disease. Laboratory work required. Winter Term. Prerequisites: BI 152 and two chemistry course credits.

BI 309 Biological Techniques

Methods and processes in preparing biological material for study. Preservation, staining, mounting specimens for microscopic examination, photomicroscopy. Laboratory work included.

Prerequisites: BI 152; CH 114.

BI 311 Mammalian Anatomy and Physiology I

Detailed study of the structure and function of the neural, endocrine, reproductive, and digestive systems. Cadaver anatomy, medical terminology, and Problem-Based Learning activities included in the laboratory. Primarily for preprofessional health students. Credit cannot be obtained for both BI 311-BI 312, and BI 202. Prerequisite: BI 152.

BI 312 Mammalian Anatomy and Physiology II

Detailed study of the structure and function of the respiratory, cardiovascular, renal, and musculoskeletal systems. Cadaver anatomy, medical terminology, and Problem-Based Learning activities included in the laboratory. Primarily for preprofessional health students. Credit cannot be obtained for both BI 311-BI 312, and BI 202. Prerequisite: BI 152.

BI 315 Ornithology

Introduction to the biology of birds. Emphasis on field work involving identification and ecology of birds. Early morning (7 a.m.) field trips. Preparation for a lifelong interest in bird identification and avian ecology. May Term odd years. Fee. Prerequisite: BI 152.

BI 320 Aquatic Biology

Survey of aquatic organisms and their adaptations to different habitats. Emphasis on field and laboratory techniques. Writing intensive. May Term. Fee. Prerequisite: BI 152 or instructor approval.

BI 325 Behavioral Ecology

Introduction to study of animal behavior. Emphasis on role of evolution in shaping animal behavior. Laboratory and field work required. Prerequisite: BI 211.

BI 335 Neurobiology

Introduction to study of neuroscience. Emphasis on cellular/molecular and systems neuroscience. Discussion of invertebrate and mammalian model systems. Brief review of known and theoretical bases for neurological disease states in humans. Laboratory work required. Fall Term. Prerequisite: BI 152 or BI/PSY 135 or instructor approval.

BI 349 Current Topics

Topics of student interest and current importance in biology. Possible topics: endocrinology, pharmacology, cancer, cloning, evolution.

BI 355 Biomechanics of Human Movement (½ course credit)

Identical with PE 355. The science of motion and the mechanisms of the human body at rest or in motion. The analysis of motion through basic mechanical principles of statics and dynamics. Winter Term. Prerequisite: PE 351.

BI 371, 372 Internship (variable course credit)

Integration of classroom theory with planned and supervised periods of progressively challenging employment related to students' career objectives. Only one course credit applies toward a

biology major. P/D/F only. Possible off-campus costs. Prerequisites: third- or fourth- year standing, 2.0 cumulative and major GPA, and department approval.

BI 399 Supplemental Instruction: Biology (½ course credit)

Teaching practicum in a specific area of study. Student SI leaders participate in leader training, attend classes for which they serve as leaders, prepare and lead study sessions that reinforce course content, model and teach effective study strategies. P/D/F only.

BI 401 Histology

Introduction to microscopic anatomy of vertebrate tissues, organs, organ-systems, with emphasis on the human. Laboratory work required. Prerequisite: BI 152.

BI 405 Immunology

Role of immunologic mechanisms in health and disease. Immune system, immune response, biologic amplification, factors regulating immunologic processes. Brief review of known and theoretical bases for immunologic diseases. May Term odd years. Prerequisite: BI 211.

BI 416 Molecular Biology of Cancer

Understand cancer through the study of processes at the molecular level with expanded study of the cell, tissue, and organism level. Laboratory work required. Winter Term odd years. Prerequisites: BI 211 and two semesters of chemistry.

BI 440 Teaching Practicum in Biology (variable course credit)

Experience in laboratory teaching, including classroom instructional assistance, laboratory preparation, classroom data keeping, tutorial direction. Recommended for students planning to teach or continue with graduate studies. P/D/F only. Prerequisites: third- or fourth-year standing and department approval.

BI 450 Independent Study (variable course credit)

Instructor-approved independent study or research.

BI 455 Methods of Biological Research (½ course credit)

Methods of scientific study. Searching the literature, hypothetico-deductive method, research process, data collection and analysis, preparation of figures and tables, writing process. Literature critiques and research proposal required. Fall and Winter Terms. Prerequisites: third- or fourth-year standing or department approval.

BI 456 Student-Originated Research (½ course credit)

Hands-on research experience. Students conduct independent research projects developed in BI 455. Lecture topics cover manuscript and poster preparation. Laboratory notebook, formal poster presentation, and major report required. Writing intensive. Fall and Winter Terms. Prerequisite: BI 455.

BI 461 Science Seminar (½ course credit)

Weekly seminar sequence exploring historical, ethical and interdisciplinary elements of biology. Team-taught using lecture/discussion format. Capstone. P/D/F only. Fall and Winter Terms. Prerequisite: third- or fourth-year standing.

BI 470 Secondary Content Methods: Science

Identical with CH 470 and PHY 470. Designed to precede

secondary student teaching with emphasis on introducing, developing, and practicing discipline-specific pedagogy and reviewing general teaching methods. Prerequisites: ED 229 and admission to Teacher Education Program.