

## Biology Course Descriptions

### BS 1111 Biological Science Lab

A lab to accompany BS 1113. Must be taken simultaneously with BS 1113. The lab provides hands on exposure to the scientific method and basic laboratory techniques. The lab compliments lecture to reinforce concepts such as experimental design, interpretation of scientific studies, critical thinking, molecular genetics, organismal biology, and environmental issues. Fall, Spring.

### BS 1113 Biological Science

A course for general education that provides an overview of the biological sciences. The course provides background knowledge in the scientific method, cell biology, genetics, taxonomy/systematics, organismal biology, and environmental issues. Three hours of lecture per week. Fall, Spring.

### BS 1134 Botany

A study of the form, structure, function, and reproduction of plants. Three hours of lecture and two hours of laboratory per week. Prerequisite: BS 1111 and BS 1113. Fall, odd years.

### BS 1154 General Zoology

Fundamentals of the invertebrate and vertebrate organisms. Three hours of lecture hours and two hours of laboratory per week. Prerequisite: BS 1111 and BS 1113. Spring.

### BS 2001-4 Introductory Special Problems in Biology

This course provides an introduction to research skills in biology. May be repeated for 1-4 credit hours. Prerequisite: Permission of the advisor and of the department chair. On demand.

### BS 2113 Medical Terminology

Provides the student with increased familiarity with medical terms (including suffixes, roots, prefixes) and with review of anatomical structures. Prerequisite: BS 1111 and BS 1113. Online; on demand.

### BS 2214 Anatomy and Physiology I

The structure and function of the different systems of the body. Three hours of lecture and two hours of laboratory per week. Prerequisite: BS 1111 and BS 1113. Spring.

### BS 2314 Microbiology

The study of the taxonomy, morphology, and physiology of micro-organisms, their relation to medicine, industry, agriculture, and basic lab technique. Three hours of lecture and two hours of laboratory per week. Prerequisite: BS 1111 and BS 1113. Spring, even years.

### BS 2413 Genetics

The study of genetic material, the gene as a unit of recombination, mutation, function and regulation. Three hours of lecture per week. Prerequisite: BS 1111 and BS 1113. Fall.

### BS 3134 Entomology

The study of the biology of insects. A study of the morphology, physiology, phylogeny, ontogeny, behavior, ecology and population biology of insects. Emphasis will also be placed on the importance of

interaction with humans, from the potent roles of some insects in agriculture, to insects as vectors of disease. Three hours of lecture and two hours of laboratory per week. Prerequisite: BS 1111 and BS 1113. Fall, even years.

#### BS 3214 Biochemistry

An introduction to the organic structure of living systems. Concepts dealing with proteins, enzymes, metabolism and biosynthesis. Three hours of lecture and three hours of laboratory per week.

Prerequisites: CH 3164, BS 1111 and BS 1113. Spring, odd years.

#### BS 3513 Economic Botany

The study of the uses humans make of plants. Prerequisite: BS 1111, BS 1113 and BS 1134 or permission of the instructor. On demand.

#### BS 3514 Cell Biology

The detailed study of the structure and function of the cell. This course covers cell biochemistry, genetics, molecular biology, and cytology. Four hours of lecture per week. Prerequisites: BS 1111, BS 1113 and BS 2413. Spring, odd years; Fall and May terms online on demand.

#### BS 3614 Comparative Anatomy

The study of the similarities of anatomy and phylogenetic relationships. Three hours of lecture and two hours of laboratory per week. Prerequisites: BS 1111, BS 1113 and BS 1154. Fall, odd years.

#### BS 3714 Anatomy and Physiology II

A continued exploration of topics that were introduced in Human Anatomy and Physiology (BS 2214). In this course, we explore the structure and function of human organ systems. Particular emphasis will be placed on how processes at lower levels of biological organization promote the function of these organ systems, as well as how these organ systems work together to promote the function of the entire human body. The material in this course will build upon, rather than overlap with, material in Anatomy and Physiology. An additional weekly laboratory will emphasize the anatomy of human organ systems. Three hours of lecture and two hours of laboratory per week. Prerequisite: BS 1111, BS 1113 and BS 2214. Fall, odd years.

#### BS 3814 Ecology

This course presents an introduction to how living things interact with each other and with their surroundings. We explore biological phenomena at higher levels of organization, including organismal, population, community, and ecosystem ecology. Three hours of lecture and 3 hours of laboratory per week. Prerequisite: BS 1111 and BS 1113. Spring, even years.

#### BS 3913 Science Exam Preparation

This course provides assistance for students preparing to take standardized exams such as the MCAT, PCAT, GRE, and others. Students will complete practice tests, analyze their results, review critical subject material, and learn test-taking skills. Practice exams will be chosen individually to match the needs of specific students. This course is pass/fail only. Credits from this course do not count as upper level biology electives or towards other degree requirements. May or Summer, on demand.

#### BS 4213 Pharmacology

The study of drugs, their mechanisms of action at the system, cellular, and molecular levels and effects on human behavior. Three hours of lecture per week. Prerequisite: BS 1111, BS 1113, and BS 3714 or CH 3214 or PY 4244. Summer, on demand.

#### BS 4214 Embryology and Developmental Biology

The study of the basic principles of the development of all levels of organization of organisms. Three hours of lecture and two hours of laboratory per week. May also be taken as a three credit course without the lab. Prerequisites: BS 1111, BS 1113 and BS 1154. On demand.

#### BS 4234 Histology

This course provides an introduction to the terminology, function, and theory of histology. In addition to studying concepts and basic techniques, students will begin to gain familiarity with the function of histology. Students will also learn to identify important tissues and structure on slides. Three hours of lecture and three hours of lab per week. Prerequisites: BS 1111, BS 1113 and 8 additional hours of biology. Spring and Summer terms online on demand.

#### BS 4244 Neuroscience

An introduction to the biological foundations of behavior and the relationship between biology and psychology. Fall, odd years.

#### BS 4511-4 Natural Sciences Internship

This course is designed to allow students to gain experience in their chosen professional field. Students interested in an internship must speak with the instructor at least one semester in advance to discuss arrangements. Prerequisites depend upon the field of interest to the student. While the instructor will attempt to assist students in finding placement, students are ultimately responsible for finding a site at which to work. Students are expected to spend approximately 25 hours at the internship site per credit hour earned, although the details of course requirements must be worked out individually for each specific situation. Students may take 1-3 credits in a semester. A maximum of 2 credits may be used towards the requirements for a biology major. Fall, Spring, May Term, Summer.

#### BS 4812 Biology Seminar

Reports, readings, and discussions on materials relevant to the biological sciences. Must be a biology major or minor with 24 hours of coursework in major area or permission of the instructor and department chair. Spring.

#### BS 4831 Special Problems in Biology

Individual work under faculty supervision, designed to serve as an introduction to research and supplement regular organized courses in biology. Prerequisite: 24 hours of biology courses, submission of proposal of study, and prior permission of the advisor and of the department chair; Experimental Psychology (PY 3134) and Statistics (PY 3334) or 4 credits of Introductory Special Problems. On demand.

#### BS 4932 Special Topics in Biology

Reports, readings, and discussions on materials relevant to the biological sciences focused on a

particular topic. Must be a biology major or minor with 24 hours of coursework in the major area or permission of the instructor and department chair. Fall.