

Biological Sciences (BIOLOGY)

BIOLOGY-517

Plant Physiology 3 cr

Organized around the growth of plants stressing the living processes. The laboratory emphasizes nutrition, growth, hormones, water relations, photosynthesis, respiration and bioassay techniques.

Offered during the spring semester of even years.

Prereq: BIOLOGY-253 or equivalent.

BIOLOGY-527

Plant Pathology 3 cr

A study of the nature and classification of plant pathogens, the ecologic and physiologic relationships between host and pathogen and the principles of plant disease control. Two lectures and two hours of laboratory per week.

Prereq: BIOLOGY-141 and BIOLOGY-142 or equivalents.

BIOLOGY-541

Animal Development 4 cr

A study of reproductive cycles, gametogenesis and fertilization; the establishment of tissues, organs and systems. Introduction to embryological experimental techniques and procedures for study of frog, chick, and pig. Laboratory, lecture and quizzes. Offered during the fall semester of even years.

Prereq: BIOLOGY-251 and BIOLOGY-253 or equivalents.

BIOLOGY-545

Animal Physiology 4 cr

A study of the functional mechanisms that underlie the life processes in animals. Six hours of laboratory and lecture per week. Offered every fall semester.

Prereq: BIOLOGY-251 and BIOLOGY-253 or equivalents.

BIOLOGY-551

The Plant Kingdom 3 cr

A study of the major groups of plants, with emphasis on structure, reproduction, classification and evolution. Offered during the spring semester of odd years.

Prereq: 630-141 and 630-142 or equivalents.

BIOLOGY-553

Plant Taxonomy 3 cr

The principles of plant classification and identification, with emphasis on flowering plants of this region. Lectures, laboratories and field trips. Offered every fall semester.

Prereq: BIOLOGY-141 and BIOLOGY-142 or consent of instructor.

BIOLOGY-554

Field Botany 3 cr

A study of the major groups of plants, with emphasis on structure, reproduction, classification and evolution. Offered during the spring semester of odd years.

BIOLOGY-575

Invertebrate Zoology 3 cr

A comprehensive study of the structure, physiology, natural history and significance of the major groups of invertebrate animals. Five hours of laboratory and lecture per week. Offered every spring semester.

Prereq: BIOLOGY-141 and BIOLOGY-142 or equivalents.

BIOLOGY-590

Biology Colloquium .5 cr

Lecturers on current research and career opportunities in biology through the colloquium format. Required of Biology majors offered on a satisfactory/no credit basis every semester. May not be taken concurrently with Senior Biology Colloquium.

BIOLOGY-612

Immunology 2 cr

Immunity to infectious diseases related to changes in the constituents of the blood is explored. Transplantation of tissues, allergies, and autoimmune diseases are discussed.

Prereq: BIOLOGY-251 and BIOLOGY-253 or equivalents.

BIOLOGY-615

Endocrinology 3 cr

A study of the hormonal regulation of metabolism, growth and reproduction. Three hours of lecture per week, laboratory demonstrations arranged. Offered during the spring semester of odd years.

Prereq: BIOLOGY-253.

BIOLOGY-622

Ornithology 3 cr

Laboratory and field study of bird classification, evolution, anatomy, physiology, behavior, ecology, distribution and life histories. Field identification of resident and migrant Wisconsin birds is emphasized. Off-campus field trips. Four hours of lecture and laboratory. Offered in spring semester of odd years.

Prereq: BIOLOGY-257 or equivalent.

BIOLOGY-623

Mammalogy 3 cr

The evolution, classification, morphology, biogeography, ecology and natural history of mammals of the world. Laboratory emphasis will be on Wisconsin mammals. Two hours of lecture per week and 2 hours of laboratory. Required field trips. Offered in fall semester of odd years.

Prereq: BIOLOGY-257 or equivalent.

BIOLOGY-630

Animal Behavior 3 cr

Behavior of animals as individuals and groups, including study of causation, development, integration, evolution and adaptive value of behavior patterns. Lecture and lab-oratory. Offered during the spring semester of even years.

Prereq: BIOLOGY-251 and BIOLOGY-257 or equivalents.

BIOLOGY-644

Cell Biology 3 cr

Advanced topics in eukaryotic cellular structure, regulation, and function, with particular focus on cell growth, synthesis and transport of biomolecules, intra- and intercellular signals, cell differentiation, and cell motility. Laboratory exercises will include protein analysis, cell manipulation, cytochemistry, and transmission electron microscopy. Four hours of lecture and laboratory per week. Offered during the spring semester of odd years.

Prereq: BIOLOGY-251 and BIOLOGY-253 and CHEM-251.

BIOLOGY-653

Animal Histology 3 cr

A study of the minute structure of animal tissues by examination of materials prepared for the light microscope supplemented by micrographs showing details revealed with electron microscopy. Emphasis on human microscopic anatomy. Four hours of laboratory or lecture per week. Offered during the spring semester of even years.

Prereq: BIOLOGY-253 or equivalent.

BIOLOGY-654

Vertebrate Field Biology 3 cr

A study of the classification, distribution, ecology and life histories of the vertebrates. Special emphasis is given to the vertebrates of Wisconsin. A collection of local vertebrates will be required. Field trips. Offered during the fall semester of even years.

Prereq: BIOLOGY-257 or equivalent.

BIOLOGY-657

General Ecology 4 cr

A study of biotic populations and communities and natural ecosystems. Contemporary ecological theory and techniques will be emphasized. Laboratory exercises will include field studies, laboratory experiments, and computer simulations and analysis. Six hours of lecture and laboratory per week. Offered during the fall semester of even years.

Prereq: BIOLOGY-251 or equivalent; BIOLOGY-257 or equivalent; MATH-231 or MATH-342/542 or PSYCH-215 or equivalent.

BIOLOGY-663

Molecular Biology 3 cr

Examination of the molecular control of cellular processes through the study of transcription, translation and the control of gene expression. Emphasis is placed on activity and analysis of proteins and nucleic acids. Examples of the extensive and diverse use of these techniques throughout biology will be included. Four hours of lecture and laboratory per week. Offered during the fall semester of odd years.

Prereq: Previous course work in biology and chemistry.

BIOLOGY-667

Conservation Biology 3 cr

A study of the application of modern principles of ecology, genetics and evolution to the preservation of natural communities and their constituent organisms. Topics covered include causes and consequences of rarity of organisms, population viability analysis, preservation of genetic diversity, island biogeography, fragmentation and edge effects, and both in situ and ex situ measures for the protection of biodiversity. Three hours of lecture per week. Offered during the fall semester of odd years.

Prereq: BIOLOGY-251 and BIOLOGY-257 and MATH-231 or MATH-442/642 or PSYCH-215 or equivalent statistics.

BIOLOGY-690

Workshop 1-3 cr

BIOLOGY-691

Travel Study 1-3 cr

BIOLOGY-692

Laboratory Teaching Experience 1 cr

This course provides teaching experience at the college level for undergraduate and graduate students. Students will assist faculty members in preparing, delivering, and tearing down laboratory or discussion section instructional units in biology courses, conducting review sessions and tutoring students under the direct supervision of a faculty mentor. S/F only. Repeatable for a total of 2 credits.

Prereq: Grade of B or better in the assigned course, and a GPA of 3.00 or better.
Approval of a faculty mentor and the Biological Sciences Department.

BIOLOGY-694

Seminar 1 cr

BIOLOGY-696

Special Studies 1-3 cr

BIOLOGY-790

Workshop 1-6 cr

BIOLOGY-793

Practicum 1-6 cr

BIOLOGY-794

Seminar 1-3 cr

BIOLOGY-796

Special Studies 1-3 cr

BIOLOGY-798

Individual Studies 1-3 cr

BIOLOGY-799

Thesis Research 1-6 cr

Students must complete a Thesis Proposal Form in the Graduate Studies Office before registering for this course.