UNIVERSITY OF WISCONSIN AT WHITEWATER
GRADUATE STUDIES

College of Letters & Sciences

BIOLOGICAL SCIENCES COURSES

BIOLOGICAL SCIENCES COURSES (630)

BIOLOGY-511
Microbiology 4 cr
Examination of organisms too small to be seen by the unaided eye, ranging from their molecular organization to their role in global ecology. Primary emphasis will be the study of bacteria and viruses, their beneficial or detrimental impacts on humans, animals, plants, and their current and potential exploitation. Two lectures and two hours of laboratory per week. Offered every spring semester.
Prereq: Previous course work in biology and chemistry.

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-540
Comparative Vertebrate Anatomy 4 cr
Dissection and study of vertebrate types emphasizing characteristic structures, general relationships, comparative anatomy, and the significance of adaptation and evolution. Laboratory work, lectures and quizzes. Offered every spring semester.
Prereq: BIOLOGY-141 and BIOLOGY-142

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
Upon successful completion of this course, students will be able to: use keys and related material to identify herbaceous plants in flowering condition and woody plants and pteridophytes with or without reproductive features; identify ca. 160 of the common, important and/or conspicuous vascular plants of the area; and prepare herbarium specimens of vascular plants using appropriate collection and labelling techniques.
Prereq: BIOLOGY-141 or an equivalent introductory botany course or consent of instructor.

BIOLOGY-570
Aquatic Biology 3 cr
The study of aquatic environment, its fauna, flora and general ecology. The laboratory will emphasize the taxonomic study of aquatic organisms. Field trips. Offered during the fall semester of even years.
Prereq: BIOLOGY-257 and CHEM-102 or equivalents.

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-646
Organic Evolution 3 cr
History of evolutionary thought, evidences of evolution, and analysis of evolutionary mechanisms and processes. Offered every spring semester.
Prereq: BIOLOGY-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 nucleicacids. 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.