

# Biology (BIOLOGY)

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## Courses

### **BIOLOGY 510. Plant Biodiversity. 4 Credits.**

An introduction to the diversity of vascular plants, with an emphasis on flowering plants. Lectures cover both organismal and phylogenetic/evolutionary perspectives on plant systematics, including the use of genetic and genomic data for understanding plant evolution. The laboratory presents a survey of vascular plant diversity, covering structural characteristics of major plant families and the identification of seed plants of Wisconsin to the species level.

P: graduate status  
Spring Even.

### **BIOLOGY 511. Plant Physiology. 4 Credits.**

General physiology of vascular plants within the context of a plant life cycle: seed dormancy and germination, metabolism, transport systems, mineral nutrition, patterns of plant growth and development, growth regulators, reproduction and senescence.

P: gr st.  
Fall Only.

### **BIOLOGY 512. Mycology. 4 Credits.**

Broad taxonomic survey of fungi. Morphology, reproduction, physiology, genetics, evolution, and ecology. Role in nutrient cycling, plant disease, human welfare and biotechnology. Techniques in collection, identification, pure culture isolation, and nucleic acid applications.

P: gr student  
Fall Odd.

### **BIOLOGY 520. Field Botany. 3 Credits.**

Identification and natural history of plants indigenous to northeastern Wisconsin.

P: graduate status  
Fall Only.

### **BIOLOGY 522. Environmental Microbiology. 4 Credits.**

This course will focus on the diversity and role of microorganisms in diverse and complex environments, including the use and management of these organisms for the benefit of ecosystems and society.

P: graduate status  
Spring.

### **BIOLOGY 541. Ichthyology. 4 Credits.**

An examination of the biology of fishes including classification, phylogeny, functional morphology and population characteristics. Aspects of the ecology of the fishes will be studied in relation to behavior, distribution, diversity and production in freshwater environments

Spring Even.

### **BIOLOGY 542. Ornithology. 3 Credits.**

Overview of avian biology, emphasizing adaptation and ecology. Identification of North American bird species and other avian families. Region's most interesting birding areas.

P: graduate status  
Spring Even.

### **BIOLOGY 543. Mammalogy. 3 Credits.**

Comprehensive study of mammals, including systematics, anatomy, physiology, behavior, and ecology. Laboratory studies include work with specimens from the Richter Natural History Museum.

P: gr st.  
Spring Odd.

### **BIOLOGY 555. Entomology. 4 Credits.**

Structure, function, diversity, and ecology of insects, as well as their impact on human society. Lab develops ability to identify Wisconsin insects, both in the field and by examining microscopic anatomy.

P: graduate status  
Fall Odd.

### **BIOLOGY 557. Marine Biology. 4 Credits.**

The Ocean covers about 71% of the Earth's surface and so is obviously a huge part of the functioning biosphere. Life emerged in the Ocean but since we are terrestrial beings, Ocean life remains less well known than terrestrial life. This course serves as an overview of marine biodiversity and marine ecosystems in which the concepts learned in general biology courses can be applied to marine life. We will cover the abiotic functioning of the Ocean in order to understand the unique challenges that marine organisms face, and we will focus on an understanding of the diverse array of marine organisms, how they interact ecologically, and how humans are affecting marine ecosystems worldwide.

Fall Even.

**BIOLOGY 601. Fish and Wildlife Population Dynamics. 3 Credits.**

The course will introduce students to principles of population ecology and how such principles relate to basic models of wildlife and fish population dynamics. This course will also give students practical experience manipulating population dynamics models using computer applications.

P: BIOLOGY 203. REC: ENV SCI 302

Spring Odd.

**BIOLOGY 602. Advanced Microbiology. 4 Credits.**

Detailed study of microorganisms from viruses to fungi in their environment. Study of both free-living and pathogenic organisms and their degrading abilities.

P: gr st.

Spring Even.

**BIOLOGY 607. Molecular Biology. 3 Credits.**

Molecular approaches to biological problems, emphasizing study of informational macro molecules. Topics include replication, control, expression, organization, and manipulation of genes; RNA processing; protein processing; transposons; oncogenes, growth factors; genetic control of development and the immune system.

P: graduate status

Spring Odd.

**BIOLOGY 608. Molecular Biology Laboratory. 1 Credit.**

Molecular biology of nucleic acids and the techniques that form the basis of biotechnology. Topics include electrophoresis, restriction mapping, hybridization, plasmid analysis, and DNA cloning (recombinant DNA library construction, screening, and mapping).

P: graduate status

Spring Odd.

**BIOLOGY 699. Travel Course. 1-6 Credits.**

Travel courses are conducted to various parts of the world and are led by one or more faculty members. May be repeated to different locations.

P: cons of instr & prior trip arr & financial deposit.