

**SOCI545 (2)*****Program Implementation and Evaluation***

Strategies for implementation. Review of various methods of evaluation with emphasis on measuring outcomes and assessing quality in community program development.

**SOCI580 (1-2)*****Seminar in Community Development Leadership***

Topics include philosophical and spiritual foundations, profiles in leadership, strategic planning, grantsmanship, networking and interagency relations, managing volunteers, program evaluation.

**SOCI698 (1-3)*****Project***

Open only to students in the MSA in Community Development.

# BIOLOGY

Price Hall, Room 216

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http://www.andrews.edu/biology

**Faculty**

David A. Steen, *Chair*

Gordon J. Atkins

Bill Chobotar

H. Thomas Goodwin

James L. Hayward

David Mbungu

John F. Stout

Dennis W. Woodland

Robert E. Zdor

**Academic Programs****Credits**

BS: Biology	
Botany	45
Zoology	45
Biomedical	41
Molecular Biology	39-40
Neurobiology	41
Special	

Each degree offered by the Biology Department includes a common core curriculum and additional courses tailored to students' special needs.

Highly motivated students may compete for the Biology Undergraduate Research Traineeship (BURT) program. For full details, consult the Biology Department.

## Undergraduate Programs

**BS: Biology**

All biology majors must complete the following core and cognate courses:

**Biology Core—24**

BIOL165, 166, 348, 371, 372, 449, 451, 452.

**Cognate Core—24 or 26**

CHEM131, 132, 231, 232, 241, 242; PHYS141, 142 or 241, 242, 271, 272.

**General Education Cognates**

RELT340, PSYC101.

Students must complete the biology core, the cognate core, and the requirements for one of the emphases listed below.

**Botany Emphasis—21**

Upper-division biology courses; must include a botany course (BOT prefix) drawn from each of the environmental, morphologi-

cal, and functional groups of courses listed below. In addition, one zoological course (ZOOL prefix) must be included.

**Zoology Emphasis—21**

Upper-division biology courses; must include a zoology course (ZOOL prefix) drawn from each of the environmental, morphological, and functional groups of courses listed below. In addition, one botany course (BOT prefix) must be included.

**Biomedical Emphasis—17**

Must include ZOOL315, 464, 465, BIOL475; PHTH 417 and 427. BCHM421 must be included in the cognate core.

**Molecular Biology Emphasis—15-16**

Must include BIOL418, 419, 445, 447, and **two**



emphasizing the plants found in the Great Lakes area. Field trips.  
Weekly: 3 lectures and 1 lab. Open to non-science majors. *Fall*

**ZOOL454** ◆ \$ (3-4)  
***Vertebrate Zoology***

Covers the various specialties of vertebrate biology, including herpetology, ornithology, and mammalogy. Repeatable in the different specialized areas. Open to non-science majors. Weekly: 2 lectures and 1 or 2 labs. *Vertebrate Zoology: Mammalogy* (*Fall*, even years) and *Vertebrate Zoology: Ornithology* (*Spring*, even years) both qualify as "S" courses for General Education Service Learning.

**ZOOL458** ◆ (3.5)  
***Marine Invertebrates (offered only at Marine Station)***

Biology of invertebrates studied in the marine environment of Puget Sound. A survey of the various phyla is conducted by studying the living animals in the field, and by tide pool observation, dredging, and scuba diving. A project on a specific group or species is required. *Summer*

**ZOOL459** ◆ \$ (3-4)  
***Entomology***

Study of the fundamental aspects of insect biology. Weekly: 2 lectures and 1-2 labs. *As scheduled*

***Group B: Morphological Biology***

**BIOL428** ◆ \$ (3)  
***Paleobiology***

Covers various specialties including History of Life; Vertebrate Paleontology; Paleobiology of Dinosaurs. Origins, history, adaptations, diversity, and paleoecology of ancient organisms as documented by the fossil record. Repeatable in different areas. Weekly: 2 lectures and 1 lab. Prerequisites: BIOL166. *Fall* (odd years)

**BOT430** ◆ \$ (3)  
***Plant Anatomy***

A study of cell and tissue structure and organ development in

Weekly: 2 lectures and 1 lab. Prerequisite: BIOL166. Pre- or corequisite: CHEM231. *Spring* (even years)

**BIOL475** ◆ \$ (3)

***Biology of Bacteria***

Study of the properties of bacteria that illustrate their function and relationship to other living systems. Topics include structure and function, classification, and interaction with the environment.

Weekly: 2 lectures and 1 lab. Prerequisites: BIOL166. Organic Chemistry background recommended. *Fall*

**ZOOL425** ◆ \$ (3)

***Parasitology***

Emphasis on better known parasites of humans and animals.

Attention given to ecological factors concerned with host-parasite contact, pathogenicity and pathology, and treatment and effect on parasitized populations. Weekly: 2 lectures and 1 lab.

Prerequisites: BIOL166. *Fall*

**ZOOL475** ◆ \$ (3)

***Neurobiology***

The neural basis of behavior, with some emphasis on the human nervous system, including cellular and molecular approaches to neuron function, development of neurons and circuits, and neuro-endocrine mechanisms. Labs develop skills in electrophysiology and neuroanatomy. Weekly: 2 lectures and 1 lab. Prerequisite:

BIOL166. *Fall*

**RESEARCH AND SPECIALIZED STUDIES**