

## **BS: Biology**

### **Neuroscience Emphasis—26**

BIOL372, 372, 449, 495 (2 cr), ZOOL465, 484, three upper division electives from Biology, Psychology or BCHM422

### **Behavior/Mathematics Emphasis—28**

BIOL371, 372, 449, 495 (2 cr), ZOOL484, MATH141, 142, 426, STAT340

# **BIOLOGY**

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Price Hall, Room 216

## **BS: Psychology**

### **Behavioral Neuroscience—24 + 3 Gen. Ed.**

### **General Education—PSYC101**

PSYC433, 434, 460, 465, four upper division electives from Biology, Mathematics or Psychology

**Botany Emphasis—18**

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

**BIOL111, 112, 113** § (4, 3, 1)

**A** I, II, III

BIOL111 and 112 includes cell biology, functional anatomy and control of each organ system of the human. BIOL111 Weekly: 3 lectures and 1 lab; BIOL112 Weekly: 2 lectures and 1 lab; BIOL113 Weekly: 1 lecture and 1 lab, includes more detailed anatomy.

BIOL111 is a prerequisite for BIOL112. BIOL112 or consent of the instructor is the prerequisite for BIOL113. Does not apply to a major or minor. BIOL111: F; BIOL112: ; BIOL113: .

**BIOL208** § (4)

**E**

Study of basic ecological principles as applied to human activities. Discussions deal with contemporary environmental issues. Lab includes field trips, guest speakers, and experiments. Meets General Education science requirements for non-science majors and applies toward the environmental science major and certain state educational certification requirements. Weekly: 3 lectures and 1 lab. F.

**BIOL260** § (4)

**G**

Includes history, morphology, classification, control, growth, transmission, and pathogenicity of selected bacteria, viruses, rickettsia, fungi, and parasites. Covers the nature of host defenses against pathogens, including the acquisition of specific immunity and immune disorders. Weekly: 3 lectures and two 1½ hour labs. Does not apply on major or minor. F.

**BIOL330** § (3)

**H** E L

Survey of fundamental concepts of geology and paleontology with application to a study of the history of the earth and of life. Consideration is given to interactions of religious, philosophical, and geological ideas, within a biblical world view. Weekly: 2 lectures and 1 lab. Does not apply to a major or minor.



research projects. Prerequisite: Prior or concurrent registration in BIOL444. (odd years)

**BIOL447** § \$ (3)  
**C**

Study of theory, application, and techniques useful for propagating tissues in the research laboratory. Topics include sterile techniques, nutrition, media preparation, establishment and maintenance of primary and secondary cultures, enumeration, and analysis.

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

**BIOL475** § \$ (3)  
**B B**

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. *F*

**ZOOL425** § \$ (3)

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. *F*

**ZOOL475** § \$ (3)

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. *F*

## **RESEARCH AND SPECIALIZED STUDIES**

**BIOL405** (1-4)

Investigates various specialties of biology. Repeatable in different areas.

**BIOL699**

Repeatable to 6 credits. *A*

(3) **CHEMISTRY AND  
BIOCHEMISTRY**

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Halenz Hall, Room 225  
(269) 471-3247 or 471-3248  
chemistry@andrews.edu  
<http://www.andrews.edu/CHEM/>

**Faculty**

G. William Mutch, *C*  
David E. Alonso  
Getahun Merga  
Desmond H. Murray  
D. David Nowack  
Steven E. Warren  
Peter A. Wong

Students who plan to major in chemistry or biochemistry are expected to have entrance credit in the preparatory subjects of chemistry and mathematics (including algebra and trigonometry); a background in physics is desirable. Those who do not have entrance credit or equivalent training in these subjects, particularly mathematics, may not fulfill the department graduation requirements in four years.

Students are encouraged to plan early for an on-campus or off-campus research experience required of all students in the Bachelor of Science degree programs in chemistry and strongly recommended for those in the Bachelor of Science degree program in biochemistry. This experience may take the form of a cooperative educational-research experience or research in an academic, industrial, or governmental laboratory setting. Interested students should consult the department chair.

**AMERICAN CHEMICAL SOCIETY CERTIFICATION**

- Students desiring American Chemical Society certification must
- Complete the required courses for the (ACS) Bachelor of Science degree in chemistry as spelled out in this bulletin
  - Achieve a minimum GPA of 3.00 in all chemistry courses taken at Andrews University
  - Satisfactorily complete a research or cooperative educational experience in chemistry
  - Pass at least one advanced course selected from the following: CHEM470, 474 or 475.

A complete statement of certification requirements is available from the department chair.