



**I. Major in Biology—39 hours**

- A. BIO 112, 211, 213, 214, and 215
- B. Four 300 level BIO courses including BIO 302 and 315 and excluding 395.
- C. BIO 425, 426, 427, and 498
- D. Biology elective 4 hours (221 and 222 apply only together)

**II. Teacher Licensure In Biology (Grades 7-12)**

- A. Major requirements as shown above to include BIO 221, 222, and 318.
- B. Additional requirements: PHY 112; PHY 213 & 214 (or 231 & 232)
- C. Professional Education: EDU 150, 250, 326, 418, 433; PSY 213, 318; SE 225
- D. Completion of applicable portions of the Praxis II.
- E. For additional information, see the Director of Teacher Education.

**III. Minor in Biology—23 hours**

- A. BIO 112
- B. Two 200-level BIO courses
- C. Three 300-level BIO courses

**Assessment of Majors**

Biology majors are required to take two terminal courses as a requirement for graduation, BIO 427, Research Presentation, and BIO 498, Seminar. The Biology Department also administers the Major Field Examination in Biology to senior biology majors.

**Student Organizations**

**Sigma Zeta** is a national honorary science society for those who have completed 15 hours in natural science and mathematics and who have a minimum GPA of 3.0 in s acquir

**112. Principles of Biology (4) F, S**

A study of the basic characteristics of organisms, dealing with structure, function, reproduction, and ecology. Three hours of lecture and 2 hours of laboratory per week.

**121. Human Biology (4) S**

A survey of the structure and function of the human body with emphasis on the normal operations of each organ system and the role of homeostasis. Attention will be given to selected diseases and disorders of each organ system. Three hours lecture and 2 hours lab per week. Credit cannot be earned after having earned either BIO 221 or 222. No credit toward BIO major/minor.

**200. Wildlife Biology (4) F—Even Years**

Prerequisites: BIO 100 or 112.

The biological concepts involved in fisheries and wildlife biology, their application in practice, and the exploration of contemporary issues facing the organisms, habitats and

**302. Seminar Attendance (0) F, S**

Prerequisites: 12 hours of biology. Graded on a pass/fail basis.

Students are required to attend all seminar presentations made by students enrolled in BIO 498 during the semester. Must be taken before enrolling in BIO 498.

**312. Comparative Vertebrate Anatomy (4) S—Odd Years**

Prerequisite: BIO 112 and 214, plus four additional hours of BIO, excluding BIO 221-2.

A study of the similarities of anatomy and early development of the vertebrates, complemented by dissection of representative adults. Three hours of lecture and 3 hours of laboratory per week.

**315. Genetics (4) S**

Prerequisite: 12 hours of biology, excluding BIO 221 or BIO 222.

A study of the principles of heredity including both classical and molecular genetics. Three hours of lecture and 3 hours of laboratory per week.

**316. Physiology (4) S**

Prerequisite: 12 BIO hours, excluding BIO 221-22, and CHE 106 or 314. Zoology is recommended.

A study of the principles of physiology, emphasizing metabolic processes common to many organisms. Three hours of lecture and 3 hours of laboratory per week.

**317. Developmental Biology (4) F—Odd Years**

Prerequisite: 12 BIO hours, excluding BIO 221-22. Zoology is recommended.

A study of development in organisms, including both classical, descriptive embryology and contemporary investigations of processes involved in morphogenesis and differentiation. Three hours of lecture and 3 hours of laboratory per week.

**318. Ecology (4) S—Even years**

Prerequisite: 12 hours of biology, excluding BIO 221-22.

A study of the interactions between organisms and their biological and physical environments. Three hours of lecture and 3 hours of laboratory per week.

**320. Immunology (4) F**

Prerequisite: BIO 211, CHE 314, and 8 additional BIO hours, excluding BIO 221-2.

A fundamental course dealing with principles of immunity and the mechanism of the immune response. Laboratory emphasis is on serology and transplantation immunology. Three hours of lecture and 3 hours of laboratory per week.

**321. Ecotoxicology (4) F—Even Years**

Prerequisites: 12 hours of BIO, excluding 221-2, and CHE 111-2.

A comprehensive overview of the ecological consequences of environmental pollution, the effects of toxic substances on the ecosystem as a whole and on individuals with that ecosystem and the methodology of assessing pollutant damage.

**322. Human Gross Anatomy (3) Su**

Prerequisite: BIO 221 & 222 or 214 or 312.

Cadaver anatomy and dissection for nursing, preprofessional, and physical education students to enhance understanding of anatomy and prepare them for work on living humans.

**323. Cell Biology (4) W—Even Years**

Prerequisites: 12 BIO hours excluding BIO 221-2.

A study of biological systems at the cellular and subcellular levels emphasizing functional aspects such as protein procession and sorting, membrane systems, energy generation in mitochondria and chloroplasts, and cell signaling.

### **325. Molecular Biology (4) W—Odd Years**

Prerequisites: BIO 211, 315; CHE 314 and 324.

Basic principles of molecular biology focusing on recombinant DNA methods as applied to a variety of biological questions. Students will learn basic research laboratory skills through a wide range of methods from gel electrophoresis to subcloning.

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### **180-280-380-480. Study Abroad Programs (1-4) As Needed**

All courses and their application must be defined and approved prior to travel.

### **195-6-7. Special Studies (1-4) On Demand**

Lower-level group studies that do not appear in the regular departmental offerings.

### **395-6-7. Special Studies (1-4) On Demand**

Upper-level group studies that do not appear in the regular departmental offerings.

### **425. Introduction to Research (1) F, S**

Prerequisites: Junior standing, 20 hours toward BIO major, minimum BIO GPA of 2.0. An introduction to the skills necessary to conduct scientific research, prepare a manuscript and make a presentation at a scientific meeting. Each student will develop and submit a research proposal for approval and attend all presentations in BIO 427.

### **426. Research Experience (1) F, S, Su**

Prerequisite: BIO 425, minimum BIO GPA of 2.0.

Individual research in accordance with the proposal developed and approved in 425. Students will attend all student presentations in BIO 427.

### **427. Research Presentation (1) F, S**

Prerequisite: BIO 426, minimum BIO GPA of 2.0.

Presentation of results of 426 as a publishable manuscript and oral presentation.

### **495-6-7. Independent Study (1-4) On Demand**

Individual research under the guidance of a faculty member(s).

### **498. Biology Seminar (1) F, S**

Prerequisite: 28 hours toward BIO major, a minimum BIO GPA of 2.0, senior standing. The writing and oral presentation of a library research paper in addition to weekly discussions of current biological research. May be modified at the discretion of the department.