

## ***Concentration in***

# **Physiology and Organismal Biology**

Physiology and organismal biology are broad, integrative, and overlapping disciplines that generally focus on the study of life above the cellular level. Physiology integrates molecular, cellular, systems, and whole-body functions of organisms. Related courses in the department mainly emphasize the study of vertebrates and provide a foundation for the understanding of the mechanical, physical, and biochemical basis of human physiology. Organismal biology focuses on the mechanisms that contribute to the form, function, and behavior of whole organisms. Courses in this area approach these subjects in an ecological and evolutionary context. The concentration offers opportunities to gain hands-on experience through upper-level electives that include a laboratory section (e.g., *Human Anatomy, Human Physiology*) or advanced experience courses (e.g., *Topics in Biomechanics, Cancer as a Metabolic Disease*). Additionally, research, mentoring, or teaching opportunities may be arranged with core faculty.

This concentration prepares students for a wide variety of career paths, including the perusal of advanced degrees in human and veterinary medicine and graduate research in ecology, evolutionary biology, and applied natural sciences. Graduates with this concentration may also pursue employment in an array of fields including animal science, biology education, biotechnology, wildlife and fisheries biology, exercise physiology, pharmaceutical/biotechnology research, natural resource management, or conservation.

### **GENERAL BIOLOGY COURSE REQUIREMENTS FOR THE BIOLOGY BS DEGREE**

- 1. BIOL 2000 Molecules and Cells**
- 2. BIOL 2010 Ecology and Evolution**
- 3. BIOL 2040 Investigations in Molecular Cell Biology**
- 4. Category A: Genetics and Genomics. Choose one course from the following**
  - BIOL 3050 Genetics
  - BIOL 3150 Introduction to Genomics
  - BIOL 3060 Introduction to Genetics (summer only)
- 5. Category B: Physiology and Organismal Biology. Choose one course from the following**
  - BIOL 3030 Introduction to Physiology
  - BIOL 3210 Plant Biology
  - BIOL 4110 Ornithology
  - BIOL 4330 Human Physiology
  - BIOL 4450 Behavioral Ecology
- 6. One Advanced Experience course (see current listing on the Biology Checklist)**

### **ADDITIONAL COURSE REQUIREMENTS TO COMPLETE A CONCENTRATION IN PHYSIOLOGY AND ORGANISMAL BIOLOGY**

- 1. BIOL3030 Introduction to Physiology OR BIOL4330 Human Physiology (*also applied to Category B above*)**
- 2. Choose FIVE additional courses from the following list:**

BIOL 3030 Introduction to Physiology	BIOL 4450 Behavioral Ecology
BIOL 3210 Plant Biology	BIOL 4350 Biological Chemistry or
BIOL 3140 Exp Methods in Organismal Biology	CHEM 4461 Biochemistry I
BIOL 4030 Deep Sea Biology	BIOL 4520 Molecular Biology of Exercise
BIOL 4110 Ornithology	BIOL 4540 Neuroscience
BIOL 4260 Human Anatomy	BIOL 5075 Emerging Therapeutics
BIOL 4290 Medical Biochemistry and Metabolism	BIOL 5380 Topics in Biomechan
BIOL 4330 Human Physiology	

**See the following faculty for advice about course selection and/or post-graduate research in this concentrati**

Emrah Altindis  
Jeffrey DaCosta  
Lynn DiBenedetto

Christopher Kenaley  
Heather Olins  
Thomas Seyfried

Danielle Taghian