BEHAVIORAL BIOLOGY
BIOS 4471 RNZ SYLLABUS
Spring 2024; Pacific Program

Course description

This course is an introduction to the study of behavior. We will examine basic principles derived from evolution, ecology, ethology, and development, and use these principles to explain how and why organisms behave as they do. We will focus on many important biological activities such as communication, social behavior, predator-prey interactions, mating, and parental care. We will consider the physiological mechanisms which generate and control behaviors, the immediate environmental conditions and stimuli which elicit behaviors, the ecological contexts in which behavior occurs, the ontogeny of behavioral patterns in the individual, and the evolution of behaviors within species.

Instructor

Dr. Michael Goodisman: michael.goodisman@biology.gatech.edu ; Office hours: TBD and by appointment.

Required resources

Dugatkin, L. A. (2020). *Principles of Animal Behavior (4th ed.).* University of Chicago Press. Print ISBN 9780226448381; eText ISBN 9780226448411. The textbook is an excellent resource for learning and understanding behavior. It is highly recommended that you use the eText.

Learning outcomes

By the end of this class, students will be able to:

1. Demonstrate how evolutionary and ecological processes shape behavior
2. Explain how genetic, developmental, and physiological systems affect behavior
3. Design and implement experiments to test behavioral hypotheses
4. Distinguish between proximate and ultimate causes of behavior
5. Understand concepts that explain behavioral differences within and between species.
6. Read, interpret, and explain primary literature that concerns behavior
7. Effectively communicate scientific findings concerning behavior in both oral and written modes

Class organization

This is a three-credit course intended for advanced undergraduates. Class time will consist of lecture and a variety of small group activities designed to discuss, clarify, and apply new ideas. I expect you to demonstrate persistent learning by attending every class period, reading ahead, bringing appropriate notes from the readings that support quality participation during class, and taking personal responsibility for the success of both yourself and your peers. To maximize your understanding of course material and do well on the class assignments, you will need to complete each reading assignment before the relevant class.

Please be courteous to your fellow students and do not disrupt class by entering and leaving the room, reading, talking, allowing cell phones to ring, etc. Computers will be required in the class. However, computer (or smartphone or smartpad) use must be restricted to relevant, class activities.

You are permitted to miss two classes without excuse. You will lose 5% of your total class grade for every missed class thereafter.

Honor policy:
Your conduct should conform to the Student Honor Code (http://www.honor.gatech.edu/). Students found in violation of the Honor Code will be reported to the Dean of Students for disciplinary measures.

Learning Accommodations:
Please contact the instructors during the first week of class or as soon as possible if you need classroom accommodations. Accommodations should be arranged in advance and in accordance with the Office of Disability Services (http://disabilityservices.gatech.edu/)

Student-Faculty Expectations Agreement:
At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Assessments: Your grade in BIOS 4471 will be determined by your performance on several assessments

1. Exams: There will be two exams in the class. The exams will primarily focus on assessing your understanding of the lecture and textbook material.
2. Short assignments: A large component of the course grade will consist of a variety of assignments aimed at furthering your understanding of behavior. These assignments may include group field projects, short critiques, case studies, in-class analyses, field notes, behavior projects, out of class reviews, oral presentations, research reports, etc.
3. Class participation: Your in-class participation will be important. Regular and insightful participation in classroom discussions and projects is expected.

Assessment	Value
Exam I	15%
Exam II	20%
Short assignments	50%
Class participation	15%
Total	100%

The most stringent scale used will be: 87-100% an A, 73-86% a B, 60-72% a C, 50-59% a D, and 0-49% or less an F. This scale is subject to adjustment at the discretion of the instructor.

Grade changes:
Grades are not negotiable commodities. However, mistakes can and do occur. If you feel a writing assignment or exam has been incorrectly scored, notify the Professor directly by email as soon as possible. Any requests for adjustment of grades *must* be submitted by email no more than 48 hrs after the work has been returned, and should include a detailed explanation of the problem. Note that the entire assignment may be reevaluated, and a final, revised grade (higher or lower) will be assigned if warranted.

Tentative class schedule: *The schedule for this class will be highly dynamic and changeable.* We will take advantage of unforeseen opportunities to learn about the ecology and evolution of behavior. Therefore, the schedule below is only an estimate of how the class will proceed. We will cover a subset of the topics below but we will not cover them all.

1 Principles of Animal Behavior
2 The Evolution of Behavior
3 Hormones and Neurobiology
4 Molecular Genetics and Development
5 Learning
6 Cultural Transmission
7 Sexual Selection
8 Mating Systems
9 Kinship
10 Cooperation
11 Foraging
12 Antipredator Behavior
13 Communication
14 Habitat Selection, Territoriality, and Migration
15 Aggression
16 Play
17 Animal Personalities