

## BIO 27 Animal Behavior

Class meets in the K slot: Tu & Th 2:50-4:40 asynchronous lectures,  
synchronous discussions and Q&A

### Professor

Ryan G. Calsbeek

Office Hours: Tues 1-2 & Fri 3-4

### Teaching Assistants

Ridhi Chandarana

### Overview

### Prerequisites

Bio 15 or Bio 16 or permission of instructor

### Readings

Readings will include a mix of book chapters from "Principles of Animal Behavior" by Lee Alan Dugatkin, "Evolutionary Behavioral Ecology" edited by Westneat and Fox, and primary literature. These readings represent the majority of the content and concepts that will be presented in class. Dugatkin's book is semi-optional. I won't require you to buy it, and material on exams will all be discussed in class, but it's an excellent book and will provide substantial background reading in many cases. For those who don't buy the book, I will provide a reserve copy for scanning.

### Blackboard

I have set up a CANVAS site for Bio 27. The specific reading assignments for each class, as well as powerpoint slides will be available on CANVAS. I recommend that you check the site often for newly posted material.

### Assessment of Your Academic Performance

You will write weekly comments and critiques on assigned readings in advance of the lectures. These will be a means for you to prepare yourselves for discussion by synthesizing your thoughts and ideas about the week's topic. These commentaries, tracked over the quarter, will contribute 20% to your final grade. Two midterms (25% each) and a cumulative final exam (25%) during the term. Exams will focus on the topics covered during each few-weeks interval, including lecture material and topics raised during in class discussions (the latter of which will not be covered in course notes so you must be prepared for these discussions in advance). As the course progresses, I will take opportunities to link current topics with earlier ones; these connections will also be reflected in the progression of lectures. The final will cover material from the last two weeks of lectures AND will also include integration and synthesis of major concepts covered during the term. The remaining 5% of your grade will be based on your performance in class presentations and participation.

### Academic Honesty

**Academic honesty is essential.** The following is quoted directly from the Dartmouth College Student Handbook : "Students who submit work that is not their own or who commit other acts of academic dishonesty forfeit the opportunity to continue at Dartmouth." The complete text of the Academic Honor Principle is in the Student Handbook or at (<http://www.dartmouth.edu/~deancoll/documents/handbook/conduct/standards/honor.html>). Please read the Honor Principle carefully; **you** are responsible for knowing and understanding the Honor Principle, and adhering to its letter and spirit. Any violations of the Honor Principle in this course must be referred to the Committee on Standards and can result in your suspension for multiple terms, or, in the most extreme cases, separation from the College.

At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all have equal access to the educational and employment opportunities Dartmouth offers. We strive to promote an environment of sexual respect, safety, and well-being. In its policies and standards, Dartmouth demonstrates unequivocally that sexual assault, gender-based harassment, domestic violence, dating violence, and stalking are not tolerated in our community.

The Sexual Respect Website (<https://sexual-respect.dartmouth.edu>) at Dartmouth provides a wealth of information on your rights with regard to sexual respect and resources that are available to all in our community.

Please note that, as a faculty member, I am obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator. Confidential resources are also available, and include licensed medical or counseling professionals (e.g., a licensed psychologist), staff members of organizations recognized as rape crisis centers under state law (such as WISE), and ordained clergy (see <https://sexual-respect.dartmouth.edu/reporting-support/all-resources/confidential-resources>).

Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator or the Deputy Title IX Coordinator for the Guarini School. Their contact information can be found on the sexual respect website at: <https://sexual-respect.dartmouth.edu/reporting-support/all-resources/campus-resources>

**Special Circumstances**

I encourage students with learning, physical, or psychiatric disabilities that may need special classroom accommodations to make an appointment to see me by the end of the second week of the term. All discussions will be confidential, although we may need to consult the Student Accessibility Services office to discuss implementation of special requests.

I recognize that some students may wish to take part in religious observances that fall during the term. Should you have a religious observance that conflicts with your participation in the course, please speak with me by the end of the second week of the term to discuss appropriate accommodations.

**Course Layout:**

Specific lecture topics are given below. This is a rough approximation and may vary depending on pace and discussion time. The overall structure of the course however will move from a section on **historical and methodological principles** to a section on **social and cultural components of behavior** to a section on **environmental components of behavior (behavioral ecology)**

**Animal Behavior**

## Class Schedule

History and the method

Heritability

Selection

Levels of Selection

Social Learning

The evolution of Sex

**MIDTERM I (XHOURL)**

sexual differentiation

Mating systems and parental investment

Male strategies

Female strategies

Games animals play

Optimal Foraging

**MIDTERM II (XHOURL)**

Foraging Ecology

Predator vs. Prey

Sensory systems and communication

Speciation mechanisms

Dispersal and Migration

Evo\_Devo of behavior

Dugatkin Ch 1., critique "typological thinking"

Dugatkin Ch 2, critique "heritability of IQ"

Critique Brodie et al.

green beard 3 papers

Dugatkin Ch 4 greenbeard critique

Dugatkin Ch 3&amp;6, "phylogeny of asexuality"

Dugatkin Ch 3&amp;6, critique "homosexuality"

Dugatkin Ch 7, "sexual conflict"

Dugatkin Ch 7, critique "silent night; ARTs"

Dugatkin Ch 6, "r-K density cycles"

Dugatkin Ch 14, critique "games lizards play"

Dugatkin Ch. 10, critique "spandrels of San Marco"

Dugatkin Ch 11,

Dugatkin Ch 12, critique "bat sonar" critique

Dugatkin Ch 13, "cichlid sensory systems"

Critique "speciation in real time"

handouts critique "speciation in a ring"

Handouts