

216-441: ANIMAL BEHAVIOR

Spring Semester

Class Meeting Times:**Tu, F 9:15 – 10:35; BT - 123**Instructor: Dr. Kimberly Russell
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**Office Hours: T 11-12:30;
W 2:30-4****Introduction and Syllabus**

We all have a desire to understand the world around us that goes beyond what we need to know in order to survive: this curiosity is usually the main reason for our interest in ethology, which is the study of animal behavior. How can we justify such self-indulgence? Animal behavior is a relatively recent, yet rapidly growing major area of research in the biological sciences. Understanding animal behavior actually has many practical applications, beyond satisfying our curiosity. By observing animals, we can learn about their ecological relationships and their evolutionary history. Many animals can serve as model organisms for understanding the behavior of our own species: nervous system and brain function, as well as the evolution of human behavior. We interact with animals in the context of companions, and as sources of food. Finally, those of us who wish to maintain and preserve the environment need to understand the behavioral processes of animals in the wild in order to conserve and protect them.

LEARNING GOALS

- Demonstrate knowledge of the fundamental questions of animal behavior
- Demonstrate understanding of evolutionary processes that produce behavior in animals
- Demonstrate working knowledge of the basic techniques of how scientists study behavior
- Gain experience reading, evaluating and discussing scientific primary literature
- Demonstrate proficiency interpreting figures and graphs
- Reinforce understanding of Evolution & the Scientific Method
- Communicate concepts of behavior and evolution orally and through written text

TEXT

Alcock, J. 2013. *Animal Behavior: An Evolutionary Approach*. 10th Edition, Sinauer Associates, Inc.
ISBN-13: 978-0878939664 (*hint: you can rent from Amazon for <\$20*)

Additional Readings: PDFs of articles listed on the syllabus will be available for download from Sakai. If I post new readings, I will send out announcements via e-mail. It is your responsibility to read your e-mails!

The textbook chapters are for your reference to help you understand the lecture material. Journal articles should take priority for completion prior to class.

Tentative Lecture Schedule

Date	Topic	Reading & Assignments
1/19 (T)	Introduction: Objectives & Mechanics; Bias in the study of behavior	
1/22 (F)	History of Ethology & Evolution Review	Ch. 1
1/26 (T)	Ultimate & Proximate Question; Observational Methods	Ch. 10

	Cricket Behavior (set-up)	
1/29 (F)	Testing Hypotheses in Behavioral Ecology	Ch. 5 (p. 103 – 117)
2/1 (T)	Development of Behavior: Heredity & Environment Discussion paper: Why study development?	Chap. 11 p. 323-349 Westetal2003.pdf
	<i>Upload to Sakai</i>	Cricket Ethogram Due 2/3
2/5 (F)	Development of Behavior: Learning	Ch. 11 p. 349-355
2/9 (T)	Quiz 1 Control of Behavior: Neural Mechanisms, Stimulus Filtering & Perception	Ch. 12
2/12 (F)	Organization of Behavior: Neural Command Centers & Schedules, Social Interactions & Hormones	Ch. 13
2/16 (T)	Anti-predator Behavior; Darwinian Puzzles & Game Theory	Ch. 5
2/19 (F)	Feeding Behavior: Optimal Foraging & More Darwinian puzzles Discussion paper: Foraging & Social Interactions in Chimpanzees	Hopperetal2015
	<i>Upload to Sakai</i>	Cricket Proposals Due 2/22
2/23 (T)	Group Workshop: Picking Topics	MANDATORY ATTENDANCE
2/26 (F)	Habitat Selection: Dispersal, Migration & Territoriality	Ch. 6 Seeleyetal2006.pdf
3/1 (T)	Film: Trials of Life – Talking to Strangers Communication I: Signals, Receivers & Exploitation	Ch. 4
3/4 (F)	Communication II: Illegitimate Receivers & Deception Discussion papers: Why (not) lie? Testing the Handicap Hypothesis	Polnaszek&Stephens2014; Szabocls&Penn2015
3/8 (T)	Midterm Exam	
3/11 (F)	Film: What Females Want & Males Will Do Meet with group	
3/15 (T) & 3/18 (F)	SPRING BREAK (NO CLASS)	
3/22 (T)	Reproductive Behavior: Sex Differences & Competition, Mate Choice & Sexual Conflict	Ch. 7
3/25 (F)	Mating Systems: Polygyny, Polyandry & Monogamy (+) Discussion papers: Is infanticide adaptive?	Ch. 8 Hydy1977; Curtin&Dolinow1977
3/29 (T)	Parental Care: Mothers & Fathers Meet with group	Ch. 9
4/1 (F)	Student Presentations I	
4/5 (T)	Parental Care II: Parasitism, Favoritism & Adoption	Daly&Wilson1996; Alvergneetal2009

	Discussion papers: The Cinderella Effect	
4/8 (F)	Student Presentations II	
4/12 (T)	Quiz 2 Film: Painted Dogs of the Okavango	
4/15 (F)	Student Presentations III	
4/19 (T)	Social Behavior I: Group Life & Hierarchies	Ch. 3
4/22 (F)	Student Presentation IV	
4/26 (T)	Social Behavior II: Cooperation	Ch. 2 (in part)
4/29 (F)	Discussion paper: Apes on a Plane	Hrdy2012
Exam Period	Final Exam	

Class Policies

GRADES

- 2 Exams (100 points each)
- 2 Quizzes (25 points)
- Cricket Project (75 points)
- Student Presentation (75 points)
- Participation/Attendance (buffer)

I do not curve grades and I do not give extra credit. I do round grades up from the 0.5% level (for example, if your final grade is 86.5%, you will be rounded up to 87%). If you want an A in this class, you have to earn it by studying hard, showing up to class and completing your assignments. Grade cut-offs are as follows:

- A 90 TO 100%
- B+ 87 TO 89
- B 80 TO 86
- C+ 77 TO 79
- C 70 TO 76
- D 60 TO 69
- F BELOW 60

Attendance. I expect you to attend lecture. It will be very difficult for anyone to do well in this class without attending lecture on a regular basis, as I will be deviating from the text often. Regardless of whether you are in class or not, however, you are responsible for everything which is discussed in lecture, everything which is assigned as class reading, and any handouts which are given in class. You are expected to make your own arrangements for access to class notes or handouts that you missed. I will post lecture slides after class, but will sometimes lecture from other sources, so make arrangements to get notes if you miss class.

Makeup exams, quizzes and late assignments. Make up exams and quizzes will be possible only with a doctor's or a dean's letter or with prior approval. If you have a serious reason for missing an exam, you must call me BEFORE the scheduled exam period to notify me that you cannot take the exam. You are then responsible for arranging with me to make up the test or quiz within two days. Late assignments will be accepted, but penalized 10% of the points available for each 24-hour interval that they are late.

Academic dishonesty. I will have zero tolerance for academic dishonesty, including plagiarism or cheating. Instances of dishonesty will be punished by a zero on the assignment and a letter in your personnel file (first offense) and an F in the class (second offense).

Cricket Project. You will each be given a container with two males and one female of the common house cricket, *Acheta domesticus* to observe over a period of days. The goal of this project is to give you personal experience observing the behavior of live animals.

Assignment I (30 points). Students will turn in detailed observations of behavior along with an Ethogram & list of questions (detailed instructions will be posted on Sakai).

Assignment II (45 points). Students will design an experiment using crickets as the focal organism (detailed instructions will be posted on Sakai).

Student Presentation. The aim of this assignment is to: 1) have you learn about a particular behavior of interest to you in detail, 2) gain experience reading (and deciphering) the scientific literature, and 3) pass what you have learned on to fellow students through a presentation. In general, the idea is to find a behavior exhibited by three different species, identify the purpose of the behavior and how it might have evolved, and finally think about how unrelated organisms could have evolved to exhibit the same behavior. Students will create a PowerPoint presentation and give a ~15 minute presentation in front of the class. Students will work in groups of three or four and can divide the presentation up in any way, as long as the work is divided evenly. Groups will be assigned and there will be in-class time devoted to group meetings. Detailed instructions will be posted on Sakai.

**Please use the sign-up function of Sakai to choose a presentation date.*