

BIO 363/PSY 315: Animal Behavior

Department of Biology, Westminster College

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<http://www.youtube.com/watch?v=tojOIhc1QCY&feature=related>

Texts: **Animal Behavior,**
Breed, MD & Moore, JM., 2012, Academic Press
Supplemental articles provided during the course

Course outline:

BIO 363/PSY 315 is an introduction to the fascinating field of animal behavior. This course focuses on the ultimate and proximate factors that influence how animals interact with each other and adapt to their environments through learning, communication and social organization. It also explores other exciting issues such as, what animal behavior can teach us about our own behavior, how economic game theory may be used to explain the evolution of behavior, and how our understanding of animals' cognitive abilities is changing the way we treat them. There will be field work in the form of animal observations, a semester-long project and a possible field trip to Pittsburgh Zoo or other wild animal facility.

Pre-requisites: C- or better in BIO 202 or PSY 201, patience and willingness to spend a lot of time watching animals

Course objectives: By the end of this course students should be able to demonstrate their proficiency in the following,

- An understanding of the evolution of behavior and how selection shapes behavior
- An understanding of the **ultimate** purposes of learning, communication and social interactions in animals
- An understanding of **proximate** mechanisms that influence behavior
- An appreciation for the importance of studying animals in their natural environment
- Skills in observation, hypothesis forming and data gathering, in the field
- Competence at reading and analyzing primary literature, and familiarity with techniques used in animal behavior research
- An ability to critically discuss the inferences made about human behavior from studying animals
- Expression of concepts and ideas clearly, both verbally and in writing

Course components:

Lectures: Lectures will be based on the required text, supplemental secondary and primary literature sources and several short movies. Lectures will be both formal and/or discussion style, with some class exercises.

Labs:

There will be 7 labs in which you will observe live animals and test some of the important theories in animal behavior. During each lab, you will also learn techniques that you will apply to your semester-long project. For this reason, some labs will alternate with project time. You will be required to write a lab report for each lab, for 20 points.

Journal Club: We will have several journal club workshops during which you will learn the correct way to read, analyze and present primary literature articles. Following the workshops, teams of students will be expected to present a primary literature article to the rest of the class for 40 points. For each presentation, there will be a reviewing team who will write a critique of the presentation and the article for 20 points.

Project:

You will work in groups (minimum 2, maximum 4) on a semester-long project involving observation of a species of your choice followed by an experiment that investigates communication behaviors of that species. Some lab periods will be set aside for project time. You will be expected to work responsibly and independently on your projects. Failure to do so may result in a lowered grade for your project. You will first prepare an ethogram of your species along with a short proposal that outlines your observations of communication, your hypotheses about what it being communicated and a proposal for an experiment to test your hypotheses (40 points). Your final project will be written up in the style of a primary research paper (100 points). Outstanding papers may be submitted for publication, to an undergraduate research journal.

Presentation: Each group of students will make a formal presentation of their project at the end of the semester. At the presentation, you will talk the class through your observations and experimental design, and discuss your data and the implications of your findings. Your presentation is worth 40 points. Non-presenting students can also earn up to 20 points for participation during the presentations. Students who produce outstanding presentations will be encouraged to participate in the undergraduate research symposium.

Exams:

There will be three exams, consisting of multiple choice and short-answer questions, based on the lecture topics and supplemental reading materials. The first two exams are worth 100 points each; the final exam is comprehensive and is worth 200 points. NOTE: This is a total of 400 points which constitutes 50% of your grade. It is not possible to do well in this class without doing well in your exams.

Grading:

Journal club	40
Journal club review	20
Labs (7 X 20)	140
Project ethogram & proposal	40
Project	100
Project Presentation	40
Participation	20
Exams	400
Total	800

A	>93%	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	59-62
C+	77-79	F	<59

Academic integrity: The issue of academic integrity is taken very seriously at Westminster. Students are expected to abide by the College Policy on Academic Integrity. The policy can be found on page 75 of the undergraduate catalog: http://www.westminster.edu/acad/pdf/undergraduate_catalog.pdf.

Academic integrity is particularly important in scientific writing. I encourage you to work together and discuss your assignments with your colleagues, but unless otherwise stated, **all written assignments must be your own work.** Quotes, data, photographs or ideas taken from another source must be cited correctly. **If there is plagiarism in one of your assignments, you will receive a score of zero (0) for that assignment, and a report will be sent, in writing, to the Dean. More than one incident of plagiarism may result in you being awarded an F for the course.**

Plagiarism includes: extensive quoting, paraphrasing or copying, from any other source; books, articles, websites, other students' work or class material; Incorrect or inadequate citation of quotes, data, ideas or images; Directly copying experiments or research projects that have been developed by another student, or published by another researcher.

Date	Tentative Lecture Topic	Lab and Assignments
T, 8-28-12 R, 8-30-12	Intro' to class/Chapter 1 Intro' to Evolution and Behavior	Introduction to Projects: HSC 150
T, 9-4-12 R, 9-6-12	Chapter 7: Communication	Lab 1: Ethograms Project approval
T, 9-11-12 R, 9-13-12	Chapter 3: Behavioral Genetics	Lab 2: Observer Reliability Assay <i>Lab 1 report due</i>
T, 9-18-12 R, 9-20-12	Chapter 2: Proximate Causes of Behavior	<u>Project time</u> : Ethogram and Observer Reliability Assay <i>Lab 2 report due</i>
T, 9-25-12 R, 9-27-12	Project Discussion/Topic Review EXAM I	Lab 3: Communication in Humans
T, 10-2-12 R, 10-4-12	<i>J. Club Workshop</i> <i>J. Club Workshop</i>	Lab 4: Proximate Causes of Aggression <i>Project ethogram draft due</i>
T, 10-9-12 R, 10-11-12	<i>J. Club Presentations</i> <i>J. Club Presentations</i>	<u>Project time</u> <i>Lab 3 report due</i>
T, 10-16-12 R, 10-18-12	Chapter 5: Learning	Lab 5: Conditioning Rodents
T, 10-23-12 R, 10-25-12	Chapter 6: Cognition	
T, 10-30-12 R, 11-1-12	MONDAY CLASSES Chapter 9: Foraging	Lab 6: Foraging <i>Lab 5 report due</i>
T, 11-6-12 R, 11-8-12	Chapter 10: Defense	<i>Lab 6 report due</i>
T, 11-13-12 R, 11-15-12	Chapter 11: Mating Systems	PROJECT PRESENTATIONS HSC 150
T, 11-20-12 R, 11-22-12	EXAM II THANKSGIVING BREAK	NO LAB
T, 11-27-12 R, 11-29-12	Chapter 12: Parenting and Territoriality	Lab 7: Dominance Hierarchies <i>Lab 7 report due (complete in class)</i> PROJECTS DUE
T, 12-4-12 R, 12-6-12	Chapter 13: Cooperation	NO LAB

Final exam: Monday, 12-10-12, 11:30 AM – 2:00 PM