

Animal Behavior

University of Rhode Island

BIO 467 - Spring 2009

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Required Textbook: *Animal Behavior*, 8th edition,
 2005, John Alcock
Very highly recommended book: *Measuring
 Behavior*, 2007, Martin & Bateson



Preliminary Schedule

Class	Date	Topic	Assignment
Mechanisms			
1	Jan 22	Introduction: discovering causes	Chapter 1
2	Jan 27	Bird songs: Proximate and ultimate causes	Chapter 2
3	Jan 29	Development - Genes x environment	Chapter 3
4	Feb 3	Neural mechanisms	Chapter 4
5	Feb 5	Scheduling behavior	Chapter 5
6	Feb 10	Domestic breeds: another perspective	Dr. Fellenbaum
7	Feb 12	Observing behavior	Ethogram 1
8	Feb 17	Observing behavior	Ethogram 1
9	Feb 19	EXAM REVIEW	
10	Feb 24	EXAM I	Ch 1-2-3-4-5
Survival & Adaptation			
11	March 3	Anti-predator behavior: Theories	Chapter 6
12	March 5	Optimal foraging theory	Chapter 7
13	March 10	Habitat selection; Migration; Territoriality	Chapter 8
14	March 12	Communication and honesty	Chapter 9
15	Mar 24	Quantifying Behavior	Ethogram 2
16	Mar 26	Quantifying Behavior	Ethogram 2
17	Mar 25	EXAM REVIEW	
18	Mar 27	EXAM II	Ch 6-7-8-9
Reproduction			
19	Apr 9	Sexual selection and Mate choice	Chapter 10
20	Apr 14	Mating systems: Polyandry and polygyny	Chapter 11
21	Apr 16	Parental care: Cost-benefit analysis	Chapter 12
22	Apr 21	Social behavior: Concept of inclusive fitness	Chapter 13
23	Apr 23	Testing hypotheses	Ethogram 3
24	Apr 28	Testing hypotheses	Ethogram 3
27	Apr 30	EXAM REVIEW	
Final		EXAM Date TBA	Ch 10-11-12-13-14

Animal Behavior – Course Description

Animal behavior is the study of the physiological, ecological, and evolutionary underpinnings of behavior. In this course, we will learn how to measure behavior and we will be asking questions about both the proximate and ultimate causes of these behaviors. Part I of the course covers basics, whereas Parts II and III examine more complex behaviors, behavioral ecology, and sociobiology.

Aims

This course has five specific aims:

- To introduce you to the discipline of animal behavior, with emphasis on the roles of proximate (physiology) and ultimate (evolution) forces in shaping behavior;
- To introduce you to the significance of careful observation;
- To encourage you to think analytically about cause and effect and to think critically about evidence;
- To help you learn to find, comprehend, and evaluate primary sources of scientific knowledge;
- To understand how statistical methods are used to evaluate scientific evidence;
- To strengthen your effectiveness at written and spoken communication.

Objectives

On completion of this course, students should be able to:

- Demonstrate an understanding of the mechanisms and evolution of animal behavior: that is, acquire a lot of knowledge through memorization
- Interpret methods and results and draw conclusions about causality
- Integrate known proximate and ultimate levels of explanation
- Find primary sources of new information
- Explain scientific evidence and communicate its significance



Animal Behavior – Evaluation and Assessment

Grading Policy

In this course you will have the opportunity to teach and learn from your peers.

Rotating peer groups will be randomly assigned for each project.

90% of available points guarantees an A-, 80% guarantees a B-, 70% guarantees a C-, and 60% guarantees a D-.

Assignments	Points
1. There is a one-page Narrative of a scientific paper due February 5 th	20
2. There is one Ethogram due on February 19 th (10pts presentation/30 write-up)	40
3. There is an in-class EXAM on February 24.	100
4. There is a one-page Narrative of a paper due March 12 th	35
5. There is one page Ethogram due March 31 st	40
6. There is an in-class EXAM on March 27 th	100
7. There is a final Ethogram due April 30 th	40
8. There is one in-class FINAL EXAM during finals week (Final~1/3 comprehensive, 2/3 new material)	150
The final percentage will be calculated based on total possible points =	525

There also might be, unannounced in-class exercises. These are bonus points and can be used to improve your final percentage. They cannot be made up!

Exams

Exams include sections on:

- basic knowledge (definitions and descriptions)
- skills (interpreting graphs etc)
- comprehension (interpret and explain)
- integration (combine your knowledge to solve problems)
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Narratives

1-2 page written assignments designed to connect you with the primary literature.

Ethograms:

Behavioral studies are based on a catalog of an animal's actions, sometimes called an ethogram. You will prepare an ethogram of an animal or group of animals at the Roger Williams Zoo (or elsewhere, if you prefer). You will work in small teams and present your findings in power point format. Each member will (on their own) provide a 1 page summary to be graded. The goal here is to identify behaviors that you can measure reliably. Ethograms II and III will be similar, with the goals of quantifying specific behaviors and then testing specific hypotheses.

Timeliness and Academic Integrity

*Exams must be taken as scheduled except in very dire circumstances. Ethogram and Narrative write-ups will lose 10% for each day they are late. Unscheduled in-class exercises cannot be made up.

*In accordance with URI's academic integrity policies, all work on exams must be your own, and must be completed without written or electronic assistance. You will be working in small teams on the Narratives and Ethograms. However each individual must complete their own write up independently. Proper literature citations are required in your written work.

Assignment 1 – Literature Search and Narrative Due February 5th, 2009

Begin by reading the short 1948 paper by B. F. Skinner¹. Working with your assigned peer group, make sure that you understand the nature of Skinner's experiment. Be sure you are comfortable in your understanding of terms like 'reinforcement', 'conditioning', 'operant', etc.

Next, use 'Web of Science'² or a similar resource to find peer-reviewed scientific articles that have cited the 1948 Skinner paper.

From this list, select a single article that interests you. Don't be afraid to print out several and choose your favorite. The only restriction is that the article must be from the primary scientific literature (Not from Scientific American, Discover etc.).

Write up a 1 page summary of the article you selected. In this summary you should:

- *Clearly state what researchers did
- *Describe the hypotheses they tested and how they were tested.
- *Describe the statistics that were used.
- *Describe why the Skinner paper was cited.

Be sure to properly cite the article you are discussing!

Rules

You may work with your peer group to figure out the mechanics of "Web of Science", and you are encouraged to discuss your paper with them. However everyone in a peer group must write about a different paper, and you must do the actual writing on your own.

¹ Skinner, B. F. (1948) 'Superstition' in the pigeon. *Journal of Experimental Psychology*. **38**: 168-172.

² Linked on our WebCT page. You can also navigate there through the library page or just go directly here: http://www.uri.edu/library/reference_databases/life.html