

## ETHOLOGY, Biol 4474, Fall 2006

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Office Hours: **T & Th 3-5 or by appointment.**  
Textbook: **Drickamer, Vessey, & Jacob. 2002. Animal Behavior, 5<sup>th</sup> Ed. McGraw-Hill**

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### ASSIGNMENTS

<b>Section I</b>	<b>(Control mechanisms of behavior)</b>	
	<b>Why do dogs act like dogs and cats like cats?</b>	
8/21-23	Introduction, Selection & behavior	Chapts. 1, [2, 3] 4
8/28-29	Genes & behavior, Neural organization	Chapts. 5 & 6
	<b>Where does behavior come from?</b>	
9/4-6	Neural transmitters, Central nervous system	Chapt. 7
9/11-13	Sensory systems, Hormones & behavior	Chapts. 8 & 9
9/18-20	Hormones & behavior	
<b>9/25</b>	<b>First Test (20%)</b>	
	<b>Can animals modify their instincts?</b>	
9/27	Behavioral development	Chapt. 10
10/2-4	Behavioral development	Chapt. 11
<b>10/9</b>	<b>Fall Break</b>	
<b>Section II</b>	<b>(behavioral ecology)</b>	
	<b>How do animals manipulate one another?</b>	
10/11-16	Communication (influencing others)	Chapt. 12
	<b>Why do animals need real estate?</b>	
10/18-23	moving (for home, food, mates & predators)	Chapts. 13-15
	<b>It's all about sex &amp; violence</b>	
10/25-30	Aggression (feeding, protecting & resolving conflict)	Chapt. 16
11/1-11/6	Sex (male & female issues)	Chapt. 17
<b>11/8</b>	<b>Second Test (20%)</b>	
	<b>Why are men from Mars and women from Venus?</b>	
11/13-15	Sex (factors influencing mating systems)	Chapt. 18
<b>11/17</b>	<b>Paper Due (20%)</b>	
<b>11/18-26</b>	<b>Thanksgiving Break</b>	
11/27-29	Sex (factors influencing parental care)	
	<b>What are the contexts and limits to being social?</b>	
12/4-6	Social behavior (the costs & benefits to living together)	Chapt. 19
<b>12/8</b>	<b>FINAL EXAM, comprehensive (40%), Friday, 1:05-3:05 P.M.</b>	

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**Course Objectives:** A survey of the causal agents affecting behavior, and understanding behavior as a product of ontogenetic selection.

**Honor System:** Is to be observed. Remember: a student who either **provides** or **takes** answers violates the honor code.

**Class Attendance:** Student is expected to follow university policy, meeting every scheduled lecture session.

### Exams

Exam format will be comprised of discussion and short answer questions (i.e., multiple choice/true-false responses - see below). The Discussion questions will be tailored from questions submitted by the class from assigned chapters of the textbook; the discussion questions will be distilled to a "short study list" and made available before an exam. On the test, a few of the exact discussion questions from the study list will appear. The student then responds to a portion of the listed questions (e.g., everyone answer question 1 and then choose any two from questions 2 - 6).

The Multiple choice questions are formatted as "**multiple true/false**". Each question has five related parts, and the student provides a T/F response to each part; this permits partial credit if the entire question is not known with certainty. If there is some confusion concerning a T/F response, answer the question and write a short justification on the question sheet for me to hand grade. The short answer questions will be primarily focused on class overheads, class discussion, and bolded concepts in the textbook.

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#### Sample Questions

**Instructions:** In each of the following questions, mark which of the five options are correct [**true= (A)**] and which are incorrect [**false= (B)**] on your opscan sheet.

Reflecting our discussion of evolution and natural selection, one might correctly say that: (1) the species definition does not always fit natural populations; (2) by definition, evolution occurs when there is a change in allelic frequencies within a population's gene pool; (3) all four assumptions of the Hardy-Weinberg equilibrium are met by some natural populations; (4) most succinctly, natural selection is differential reproduction; (5) evolution is primarily driven by those individuals who survive the longest.

In his study of song acquisition of the white-crowned sparrow, Peter Marler found that: (6) all male birds shared the same song; (7) song structure is learned from the mother; (8) learning takes place during a genetically determined "critical period"; (9) a young bird isolated from other sparrows can later learn their song as adults during their first breeding season; (10) when a sparrow first begins to sing, it must be able to hear itself to properly develop the correct sounds.

### Weekly assignment

On Monday of each week, turn in a discussion question from your assigned reading of the previous week. Please choose material that can be answered in about 5 minutes; I will use these questions to generate a study list for the discussion questions on the exams. Please type out your **name**, the **Chapter** from which the question originated, and the **question** so that I can give you recognition for this effort. This exercise will: i) help you anticipate the content of test questions; ii) may result in your question being used on the test; and iii) give me a sense of student attendance. At my option, I may pose a question from the reading and ask for student response.

### Written Assignment

**Graduate students** will write a short review paper, with the following guidelines: (1) typed, double spaced; (2) a title page, text (4-10 pp), and literature cited for 6-10 references in the format of the Animal Behaviour journal; and (3) the topic area is completely open (e.g., competition, habitat preference, food habits, predator/prey interactions, neural physiology, sensory physiology, endocrinology, functional morphology, energetics, phylogeny, ontogeny, social systems, communication systems, mate choice, aggression, game theory, etc.), but the organisms must be *Anolis* lizards. The paper should emphasize the behavioral correlates of the chosen phenomenon, and whether and how the trends appear adaptive (i.e., evolved). The more narrowly focused

the topic, the easier it will be to write a short overview paper.

Grading will include the interpretation and appropriateness of the references, the apparent understanding of the concepts as expressed by the prose (naïve vs. sophisticated), the manuscript organization for logic and reader interest, and the use of the suggested format and proper grammar (see criteria below).

**Undergraduate students** will write a short interpretive paper based on a current newspaper article involving human behavior. Interpret the reported event through the eyes of an evolutionary ethologist, using concepts and relationships suggested by the course. The guidelines for the paper are: (1) a typed, double spaced manuscript of 4-6 pages; (2) four or more references of relevant literature (see the Animal Behaviour journal for style); and (3) the chosen news article appended to your manuscript.

Realizing that there is no "true interpretation", I want you to apply the concepts of ecological and behavioral selection and developmental constraints to human behavior. The exercise asks for the identification of: 1) proximate causations (immediate effects) coming from physiological, hormonal, and neurological factors, and 2) ultimate causations (historic or evolved effects) coming from species-wide propensities which are (or were) selectively advantageous within the contexts of our ecology and mating/social system. For example, why are reports of bigotry so commonplace, from stereotyping members of one's community as a basis for social and economic discrimination to religious affiliation as a basis for genocide? Include any animal models that we have covered in the course or you have researched in the literature that might lead you to believe the same type of selection pressure is operating in both your chosen human behavior and that of the animal model.

Grading will include the interpretation and appropriateness of the references, the apparent understanding of the concepts as expressed by the prose (naive vs. sophisticated), the manuscript organization for brevity, logic, and reader interest, as well as use of the suggested format and proper grammar. It is recommended that you outline your paper first, so that it is tightly structured and does not ramble.

**Chose your topic early** (gives time for false starts), **and bring your ideas to me for approval before you begin to write.**

The following are specific grading criteria:

**Style**

Description of topic; background & overview; effective use of paragraphs and topic sentences; tone & use of defined jargon; correct punctuation, mechanic, and grammar 20%

**Reference format**

Strict observance of citation format by *Animal Behaviour* journal 20%

**Substance, use of references**

Identify studies and animal models of behavior that support your interpretive thesis 20%

**Substance, logic of arguments**

Well-developed ideas, documented premises, and logical conclusions that integrate reference materials with personal inferences 20%

**Objectives**

Identify and develop the proximate and ultimate mechanisms that operate within your chosen example of human behavior 20%