

BIOL 343.01: Animal Behavior (Fall 2017)

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TR 9:55-11:10
HWWE 217

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Office Hours: by appointment. If you want to meet, we'll find a time that works. You can make appointments by seeing me after class, or via email. And I'm usually in my office or lab; feel free to stop by – if I can't meet right then, we'll set up a better time.

About the course:

Why does that animal do that? This course is about answering that question.

Animal behavior is an inherently integrative subject: to understand behavior, it is necessary to bring together diverse fields of biology (including physiology, neurobiology, genetics, development, ecology, and evolution) with comparative studies in psychology (including learning, cognition and perception), and an understanding of basic physics and economic theory. We will primarily focus on understanding behavior from a functional evolutionary perspective ('How does selection act on that behavior? What is the function of the behavior, from the animal's perspective?'), but as we will see, to do this, we will need to incorporate and integrate the other perspectives outlined above. We will use both theoretical models and empirical data to draw conclusions regarding the function of behavior.

One of the founders of the field, Niko Tinbergen, proposed that to fully understand the behavior of an animal, you had to answer the 4 questions below. We will focus primarily on the first, but (as true Tinbergenians) we will consider the other three to better inform our understanding.

1) What is the FUNCTION of the behavior? How does it affect reproductive success?	3) How does it DEVELOP? Role(s) of genes, environment, & learning?
2) What MECHANISMS underlie it? How is it controlled and produced?	4) What is its EVOLUTIONARY HISTORY? Identify homologies and/or hypothesize precursors

Course goals:

- Study the function of behavior from an evolutionary perspective;
- Integrate diverse fields of study, as described above;
- Learn the difference between data and interpretation;
- Construct a scientific understanding of animal behavior through the synthesis of individual empirical examples;
- Interpret and test theoretical models in the study of behavior; &
- Marvel at the wonder and diversity of behavior in a wide array of taxa.

Also:

- Learn how to read and interpret primary scientific literature;
- Learn how to construct a scientific argument.

Texts: There is NO textbook for this class. Readings will be assigned as we move through the material, mostly from the primary literature. Assigned readings will either be provided on Oaks or available through the library on-line journals.

Class format: This class will involve a combination of traditional lecture format and “flipped” classes with writing and assignments completed in class after viewing an on-line lecture and taking a quiz on the material. On “flipped” weeks, you will only come to class one day (i.e.,

either Tuesday or Thursday), so we will have smaller groups and can do some more in-depth discussion and working with the material. You need to choose whether you want to be a “Tuesday person” or “Thursday person”, so consider your schedule and other commitments carefully. In either case, lecture quizzes (and any reading assignments associated with the lectures) are due MONDAY at noon.

Some “flipped” classes will require a laptop computer. If you do not have access to a laptop, please let me know as soon as possible, so I can reserve some of the Department laptops.

In addition to Lecture Quizzes and in-class assignments (primarily on “flipped” days), this class includes Reading Quizzes, the Final Exam, and a semester-long Portfolio Project.

About Lecture Quizzes: To prepare for “flipped weeks” (see **Class Format**, above), you will watch 1 or more on-line lectures (see **Class Schedule**, below) and take a Lecture Quiz. Both the links to the on-line lectures and the lecture quizzes themselves are on Oaks. Lecture quizzes are due at noon on Mondays of flipped weeks, and can be taken “open note”.

About In-class assignments: On flipped days, you’ll be working on short assignments and writing short essays. On some occasions, assignments may be started in class but completed later. These assignments are graded pass/fail.

About Reading Quizzes: Reading primary literature is a skill quite different from reading textbooks or other sources: it requires the abilities to attend to detail (sorting out which details are critical), and to think critically – not just absorbing information, but engaging with the text, questioning it. To help you build this skill, you will be reading a few assigned journal articles, and completing a reading quiz about each article on Oaks before the article is discussed in class. These quizzes are meant to foster deeper, more careful reading of the primary literature, and are ‘open article’ – in fact, **you will need to have the article handy in order to answer the questions.**

About the Final Exam: The Final Exam is cumulative, and covers all material (lectures, readings, in-class work) throughout the semester. It will be primarily short-answer and essay format. Do not expect to simply regurgitate; you may be asked, for example, to interpret data you have not seen previously, using theory learned in class.

About the Behavior Portfolio Project: One of the main goals of this class is for you to learn how individual empirical examples can be used to build and support broader understanding. But the semester is too short to talk about all the cool animal behavior! So this project serves 2 main goals: (1) give you a chance to apply the theory we discuss in class to examples of specific interest to you; and (2) give you a chance to explore the behavior of an animal or animals of your choosing.

Portfolio Project Overview (see assignment documents for more details): find primary literature articles on the behavior of an animal you’re interested in, each article relevant to a particular kind of behavioral function discussed in the class. From each article, select one data figure, and post that figure to the Discussion Board with some brief summary information. Add to the discussion by making substantial comments to the figures posted by others.

Grading: This course uses competency-based grading; that is, your grade is based on your demonstrated competency in the topics covered. Use the table below to determine your grade. (Shown are “full” letter grades only; + / - grades will be given when not all of your scores fall in the same column.)

	A	B	C	D
Lecture Quizzes (9 total)	9 with scores > 90%	8 with scores > 80%	7 with scores > 70%	6 with scores > 60%
Reading Quizzes (9 total)	9 with scores > 87%	8 with scores > 77%	7 with scores > 67%	6 with scores > 57%
Final Exam	> 90%	> 80%	> 70%	> 60%
Portfolio: posts (9 possible topics)	5 meet criteria	3 meet criteria	1 meet criteria	0 meet criteria
Portfolio: comments (9 possible topics)	2 meet criteria	1 meets criteria	0 meet criteria	0 meet criteria
In-class assignments	All pass	Pass all but 1 day	Pass all but 2 days	Pass all but 3 days

But wait: nobody’s perfect; everybody has an off-day and everybody gets sick. That’s what “tokens” are for. Everyone starts with 2 tokens. Tokens can be exchanged for:

- **Re-do a quiz (reading or lecture) = 1 token.** If you think a quiz grade doesn’t accurately reflect your understanding of the lectures or the readings, you can re-do the quiz. Re-do quizzes are not the same quiz taken a second time; a new quiz will be written for you, and will likely be primarily short-answer format. **Limits:** You must have submitted a quiz attempt by the original quiz deadline, and the re-do must be requested within 3 weeks of the original quiz deadline (or before the last class of the semester, whichever comes first).
- **Replace a quiz due to missed deadline = 1 token.** Completely spaced on that lecture or reading quiz? No problem; for 1 token, you can take a “re-do” version of that quiz (see above; re-do quizzes are not the same quiz as the original, and will be mostly short-answer). **Limits:** Replacements for missed quizzes must be requested within 24hrs of the original quiz deadline.
- **Second attempt at Portfolio post or comment within the same topic = 1 token.** Normally, you can only make one attempt / topic, but if you find a second paper on the same topic that you’re excited about and would like to use for the Portfolio, that’s possible for 1 token. **Limits:** Second attempt must be a different paper (cannot be a second figure from the same paper as the first attempt).
- **Erase a day with in-class assignments = 1 token.** Got sick (or had some other emergency arise) and couldn’t come to a “flipped day”? Or came to the flipped day, but couldn’t successfully complete the assignments? For 1 token, we’ll pretend that never happened.

****Note:** if you know **in advance** that you will miss a flipped day (for example, for interviews or other scheduled-in-advance conflicts), **see me re: coming to the other day for full credit.** Using the other day to make up missed flipped days is **ONLY** possible if set up in advance.**

- **Add 2% pts to Final Exam grade = 1 token.** If you’ve got a token left over at the end and your Final Exam grade is a couple of percentage points below a threshold, I’ll bump it up 2% pts. **Limit:** 1 token only.

About Attendance: I do not take attendance on traditional lecture days – you are adults and can decide for yourselves how best to use your time. (Of course, if you miss class, it is your responsibility to obtain notes from a classmate to make sure you have the missed material. I am always happy to answer any questions you may have about the notes you get from your classmates, but please do not ask me to re-teach classes that you have missed. I do not provide lecture notes or slides – see below.)

However, because assignments are completed in class during “flipped weeks”, missed classes mean missed assignments. Assignments cannot be made up; however, missed in-class assignment days can be erased with a token (see **Grading**).

About PowerPoint slides & lecture notes: Being able to listen and process information while taking notes is a skill necessary for professionals in all fields. In addition, educational research has shown that *having PowerPoint notes available before class tends to inhibit rather than improve learning*. For these reasons, I do not post PowerPoint slides or lecture notes on-line. For “normal lecture days”, any figures or tables showing data that I show in class will be posted on Oaks. If you have difficulty taking notes in this class, or if you feel you missed something on a particular slide, please see me – I’m happy to let you review slides at your leisure there. In addition, I am happy to work with you to help you improve your note-taking skills.

Animal Behavior: Class Schedule & Deadlines (subject to change as necessary...)

“nonbold” weeks – everyone attends everyday

BOLD weeks = FLIPPED: Lecture Quiz Due NOON MONDAY; attend class on “your” day only

Week* Reading Quiz Due NOON MONDAY

Portfolio Deadlines: Original posts = due midnight 2 *weeks* from discussion of topic in class (or 12/1, whichever comes first); Comments on posts = due midnight 3 *days* after original post (or 12/1, whichever comes first).

<u>Week</u>	<u>Dates</u>	<u>Topics:</u>	<u>On-line lectures</u>
1	8/22-24	Intro to course, Tinbergen’s 4 Questions History (& pitfalls) of Animal Behavior study	
2*	8/29-8/31	Animal personality / Behavioral Syndromes	
3	9/5-9/7	Genes vs. learning; Behavioral evolution Mechanisms of Behavior: Neurobiology & Hormones Personality / Behavioral Syndromes (<i>if not completed 8/31</i>)	4 lectures, 3.25 hrs
4*	9/12-14	Antipredator Behavior	1 lecture, 1.5 hrs
5	9/19-21	Foraging Behavior: Optimality Models, Risks, Groups, Tools	2 lectures, 2.5 hrs
6	9/26-28	Competitive Behavior: Game theory, Dominance, Territories	3 lectures, 2.5 hrs
7*	10/3-5	Communication: Theory, Signaler vs Receiver-dependent costs Communication & competitive behavior, revisited	2 lectures, 2 hrs
8*	10/10-12	Intrasexual Selection: Competition & sexual conflict	2 lectures, 1.5 hrs
9	10/17-19	FALL BREAK (T); Thurs: Reproduction, communication & competition	
10*	10/24-26	Intersexual Selection: Mate choice signals & preferences	2 lectures, 1.75 hrs
11	10/31-11/2	Mating systems	2 lectures, 2.75 hrs
12*	11/7-9	Sex, mating, reproduction	[none]
13*	11/14-16	Social Behavior: Relatedness & Kin Selection, Hamilton’s Rule Beyond Kin	2 lectures, 1.5 hrs
14*	11/21	More social behavior: families & complex societies (W-F=THANKSGIVING)	
15*	11/28-30	People’s Choice** Ethics & Animal Behavior, Course Wrap-up	

Final exam: 12/7 8am

** There are MANY interesting topics not included here! Nonhuman perception (light & color, smells, sounds), Nonhuman cognition, Play, Behavior in Aging Animals, Effects of Disease and/or Parasites on Behavior, Behavior in domestic animals / human-nonhuman animal social behavior, others? .

And now, this:

As per College of Charleston Policy 7.6.10, the following information must now appear on all course syllabi. Some of this has already been discussed above; I have a hard time imagining why you'd be interested in the rest of it, but rules are rules, so here goes.

3.1 Course Title, Course Number, and Section Number

See top of pg. 1

3.2 Course Prerequisites or Co-requisites

Prerequisites = BIOL 111/111L, BIOL 112/112L, BIOL 211/211D, BIOL 305

Pre- or Co-requisite = MATH 250

(But you're all already in the class, so you knew this, right?)

3.3 Semester or Academic Term

See top of pg. 1

3.4 Faculty Name/Instructor of Record and Contact Information

See top of pg. 1

3.5 Course Meeting Places and Times

See top of pg. 1

3.6 Faculty Office Hours

See top of pg. 1

3.7 Instructional Objectives and Student Learning Outcomes

I think Instructional Objectives roughly correspond to Course Goals, pg. 1. As I understand them, Student Learning Outcomes (or SLOs, if you like the jargon) are supposed to be a short list of what you'll learn in this class. While it dismays me to think that learning in any class can be reduced to a short bulleted list, here goes:

- Apply behavioral ecological theory to the interpretation of novel empirical examples;
- Explain the function of behavior in terms of potential evolutionary advantages;
- Apply optimality models to predict behavior under varying ecological conditions;
- Calculate and explain pay-offs in game theoretical models.

3.8 Attendance Policies

See About Attendance, pg. 3

3.9 Grading Policy

If this refers to the break-down of how grades are calculated, see Grading, pg. 3. Otherwise, my policy is to grade as carefully and fairly as I can. If you ever have any questions about any of your grades, please see me.

3.10 Required and Optional Textbooks, Equipment, and Technology

See Class Format (pg. 2) and Texts (pg. 1). Note that the Portfolio Project requires copying selections from pdfs, which can be done with free software on both Macs and PCs; we'll discuss this more in class.

3.11 Accommodations for Students with Disabilities

Please let me know early in the semester if you need extra time on exams or other accommodations. You can find information about our Center for Disability Services here: <http://disabilityservices.cofc.edu/>

3.12 Academic Integrity Statement(s)

"Academic Integrity" is a fancy way of saying honesty. I prefer to assume that folks are fundamentally honest (and generally I actually find this to be true), and let's face it, a

dishonest person is not going to be persuaded to be honest just because of some statement on a syllabus. But I need to have a statement, so here goes: be honest. I know sometimes stress can make you do things you wouldn't otherwise do, and you might tell yourself that 'it's just a little cheating', but being honest is like being pregnant: you are or you aren't. Your integrity is worth a lot more than any grade; don't turn yourself into someone you can't respect for an exam or assignment you won't even remember in a couple of years.

Any cheating, plagiarism, etc. will be reported to the Honor Board. If you are not familiar with the College of Charleston Honor Code, you can find it in the student handbook: <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

3.13 Program-Specific Elements

I'm not sure what this refers to, so until told otherwise, I'm not going to include anything here.