

**BIOLOGY 425
ANIMAL BEHAVIOR
Spring, 2019**



Welcome to Animal Behavior!

This course provides a foundation and survey of topics in the study of animal behavior. Specifically (from the catalog): A study of the ecology and evolution of animal behavior, including such topics as foraging strategies, predator-prey interactions, contests, mating systems, sexual selection, communication and the application of animal behavior to conservation. Mechanisms of animal behavior (including endocrinology, genetics and neurobiology) are also discussed. Investigative laboratory and field experiences are integrated in the course

Instructor

Professor: Dr. Christopher Templeton

Office: Strain 203b

Phone: 503-352-3149

Office Hours: Monday and Friday 2:05-3pm (immediately after our class)

if these times do not work for you, I'm very happy to schedule other times to meet with you via email or just stop by my office whenever the door is open

E-mail: templeton@pacificu.edu

Course Location

Class times:

Lecture: MWF 1:00-2:05pm

Lab: W 2:15-5:15pm

Lecture and lab periods will occasionally be combined to enable longer field trips

Lecture Location: Strain 121

Lab Location: Strain 220

Learning Objectives

After completing this course, students will be able to:

- Accurately observe and describe behaviors in a variety of taxa
- Demonstrate appropriate techniques for conducting research in animal behavior
- Integrate biological concepts to explain animal behavior at Tinbergen's four levels of analysis (mechanism, function, ontogeny, and evolution)
- Critically evaluate primary research papers and research proposals
- Apply concepts from animal behavior to issues facing our society
- Identify novel behavioral questions and design and conduct research projects using detailed behavioral observations or controlled experiments
- Effectively communicate research findings in both oral and written formats

Animal Behavior also provides the following learning outcomes for the Biology major:

- Students will demonstrate deep understanding of five core concepts in biology: evolution; pathways and transformations of energy and matter; information flow, exchange, and storage; structure and function; and biological systems.
- Students will use the standard skills and methodologies of biology to answer scientific questions.
- Students will apply the scientific method, reasoning and appropriate mathematics to describe, explain and understand biological systems.
- Students will use interdisciplinary approaches (applying chemistry, physics, and mathematics to biology) to work on biological problems.
- Students effectively will read, write, speak and understand scientific material.
- Students will collaborate and communicate within biology and across disciplines.
- Students will apply science to issues facing our society

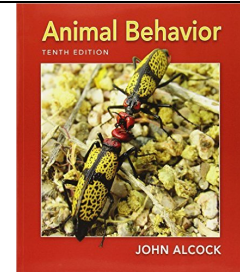
In addition, this course fulfills the Natural Sciences Core requirement. Students completing the Natural Sciences Core requirement will:

- use scientific methods and reasoning within the context of the natural sciences
- recognize the distinctive nature and limits of scientific knowledge: that it is an evolving model of the natural world, discovered and verified through experimentation and observation

Required Reading Materials

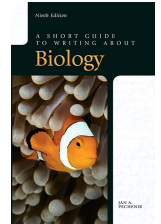
(Required) Textbook: *Animal Behavior: An Evolutionary Approach* by John Alcock. 2013 (10th edition).

This is an excellent and very readable textbook and there will be reading assigned nearly every day. Please make sure you get the correct edition as the content changes significantly between editions. Note that there is a brand new 11th edition that has just been published, but we will use the 10th edition because it provides a variety of more affordable opportunities to obtain the book.



(Recommended) *A Short Guide to Writing about Biology* by Jan Pechenik

This is a very useful little book that deals with all aspects of scientific writing and presentation. I *highly* recommend you purchase this book—it will be a useful reference throughout this and other upper-level Biology courses, and for your capstone paper and presentation. Feel free to buy another recent edition if you can save some money that way, though I will only provide page numbers from the most recent edition for readings.



(Required) Readings from the Primary Literature: Required classic and recent publications selected by students and the instructor will be provided throughout the course. In addition, students will delve deeply into recent literature related to a small group research project of their choosing.



General Course Expectations

Attendance

Research has shown that students learn best when they are active participants in the class. I expect that students enrolled in this course are adults who take responsibility for their own education. I will not take attendance in class, but class attendance and participation are strongly recommended and count towards your overall grade. Lecture and lab are key learning opportunities and we will have graded assignments periodically in class so missing either could negatively impact both your learning opportunities and your grade in the course. If you know you will miss class (e.g. for an approved university event), please let me know ahead of time and I will do my best to help you. Note that vacations, etc. are not considered approved events.

If you miss class, please first talk to your fellow students and try and get copies of notes or handouts. Then, if you still have questions after speaking with students and studying their notes, please come talk to me for further clarification.

Expectations during class

Please come prepared and arrive on time. Being prepared means completing assigned readings or assignments, being focused and ready to engage in class, and also dressing appropriately for lab (we will often be outside, regardless of the weather!). Complete readings and assignments by the

specified date and time. Avoid distractions, inappropriate cell phone use is very distracting for you, your peers, and your instructor and should not take place during class. Last, you are expected to treat the instructor and each other fairly and with respect.

Expectations outside of class

I will work hard to facilitate your learning, but only you can learn the material through focused time and effort within and outside the classroom. As a reminder, Pacific guidelines state that students should put in 2-3 hours outside of class for every credit. This means that you should expect to work for at least 8-12 hours per week *outside* of class time to pass the course!

Expectations of your Professor (me)

You can also expect me to be fair and honest with you, return materials in a reasonable time frame, and be available to you outside of class. Office hours are designated times that I will be available for students from this class but I realize that it is impossible to select times that will work with everyone's busy schedules. If those times do not work for you, please contact me and we can set another time to meet (I'm very happy to do this!)

Technology Policies

Email: I will use your official Pacific University e-mail address to send out occasional but important information. Plan to check this account regularly, or to forward messages to an account you use. Email is also typically the best way to get in touch with me outside of class hours. When you send an email, remember to only use your pacific.edu account and that professors expect email to be conducted as a formal correspondence, not like a text message. When you send me an email, please include relevant information in the subject line (e.g. "Biol201 Transcription Question"), a proper salutation (e.g. "hello Prof Templeton,"), and make sure to sign your own name. Following this framework will help ensure that I will not overlook your email by accident. I will do my best to try and reply to your email in a timely manner (usually within 24 hours), however I do not typically check my email in the evenings (after 6pm) or on weekends, so make sure you are patient or plan ahead if you have questions. Need more guidance on email etiquette? See the Moodle page for a helpful link on how to send email to your professors.

Moodle: There is a class Moodle page that I will also use to post daily learning objectives and lecture slides, readings, and details about assignments, exams, and other important information – you should visit Moodle regularly.

Cell phones: Mobile devices have become exceedingly powerful tools and on rare occasions, I might suggest that you use them in class to augment our learning. However, at all other times, I expect that your phone is silenced and *completely* put away (in a bag under your desk) so that you will not be tempted to check it. As stated above, inappropriate cell phone use can be extremely distracting and impact not just you but also your peers and professor, so please have respect for all of us and keep your phone put away. If you have a good reason to use your cell phone – e.g. a family emergency in progress – please let me know before class starts.

Unauthorized Recordings. Students are prohibited from making audio and/or visual recordings of lectures or presentations without prior consent of the instructor or presenter.

Course Assessment

I will assess your learning based on a combination of exams, class assignments, laboratory assignments, and an independent research project, with the relative percentages outlined below:

1) Exams 45%

There will be two unit exams during the semester and a final exam. Exams will consist of questions in a variety of formats, including multiple choice, short answer, and short essays. Each exam will focus on new material but assume knowledge tested on prior units. The two exams and the final are each worth 15% of your total grade.

2) Laboratory Assignments 20%

You will prepare formal lab write-up assignments for most lab activities and sometimes complete pre-lab exercises. You will receive specific details on the content of each lab write-up and pre-lab exercise in lab.

3) Seminar Presentation 10%

Students will work in teams to lead a seminar-style discussion of a research article from the primary literature during lecture. Each team will choose a recent paper, conduct appropriate background research in that topic, present the paper, and facilitate class discussion. More details and sign-up sheets will be forthcoming.

4) Independent Research Project 20%

A large component of this course will be an independent research project. Each research team will identify an interesting behavioral question, design an experiment or set of observations to address this question, collect data, analyze and interpret the results, integrating information from the course and the primary literature. You will share results from your project with the rest of the class during the last week of the semester.

5) Class participation and engagement 5%

Lectures and labs are designed for students to engage with the material and take an active role in the classroom. The success of the class depends on students being active participants and your participation and attitude during the class impact your grade. Your final grade could be adjusted by one third of a grade (plus/minus) depending on your engagement in class.

Your final letter grade will assigned as follows:

A: > 90% B: 80% - 89% C: 70% - 79% D: 60% - 69% F: < 59%

Plus and minus grades will be assigned as follows: percentages ending with 7-9 will be given a plus (e.g., 87-89% = B+); percentages ending with 0-2 will be given a minus (e.g., 80-82% = B-).

There is no extra credit. Grades are not curved, meaning that every student can achieve an A: you are not competing with other students in the course, so work together in an honest and ethical fashion.

Academic Integrity

I expect students to know and adhere to the university's "Code of Academic Conduct" policies; please carefully read them in the College of Arts and Sciences catalog. The bottom line: you must do your own work on all exams and class assignments including lab reports and pre-lab assignments. Academic honesty does not preclude discussing ideas with other students, working together on homework, studying together for exams, or providing feedback on lab write-ups as long as all text is in your own words. In addition, everyone is expected to contribute equally to group work (seminars, lab reports, research projects)

Pacific University has no tolerance for academic misconduct/cheating. It is university policy that all acts of misconduct and dishonesty be reported to the Associate Dean for Student Academic Affairs. Sanctions that may be imposed for such misconduct range from an "F" for the assignment, an "F" for the course, and suspension or dismissal from the university. Forms of academic misconduct include but are not limited to plagiarism, fabrication, cheating, tampering with grades, forging signatures, and using electronic information resources in violation of acceptable use policies.

Please talk to me before you turn in assignments if you have a question about what constitutes dishonesty. As a reminder, here are some examples of academic dishonesty and plagiarism:

- Copying the work of another student on an exam or a written assignment, including labs
- Having notes or crib sheets accessible during exams or quizzes, even if you don't use them
- Cutting and pasting phrases or sentences from textbooks, articles, or websites
- Re-using an assignment from another class
- Insufficient attribution for ideas and information from published resources

College Resources

There are many free services available at Pacific to help you succeed in your courses. I encourage you to take advantage of them! Some of these services are listed below.

Tutoring Services. CLASS (Center for Learning and Student Success) is located on the 2nd-floor of the Tran Library. The center focuses on delivering one-on-one and group tutoring services for foreign languages, math and science courses, and writing skills in all subjects. Students should consult with the center's director and look for campus advertisements regarding tutoring available for other subjects. Day and evening hours.

Learning Support Services for Students with Disabilities. If you have documented challenges that will impede your learning in any way, please contact our LSS office in Clark Hall (ext.2717; lss@pacificu.edu). LSS staff will meet with students, review the documentation of their disabilities, and discuss the services that Pacific offers and any appropriate ADA accommodations for specific courses.

Student Counseling Center. The counseling center offers individual counseling, crisis services, referrals, and workshops. They also have information on-line or in their office about issues such as stress management and sleep. 503-352-2191, Mon-Fri 9 a.m. – 5 p.m., <http://www.pacificu.edu/studentlife/counselingcenter/>

Course Schedule

Week	Date	Day	Lecture Topic	Lab Activities
1	28-Jan	M	History of Animal Behavior	Ethograms: Field trip to Fern Hill Wetlands
1	30-Jan	W	Tinbergen's 4 questions	
1	1-Feb	F	Behavioral Ecology	
2	4-Feb	M	Altruism	Designing experiments: Termite navigation
2	6-Feb	W	Altruism	
2	8-Feb	F	Kin Selection	
3	11-Feb	M	Eusociality	Optimal Foraging Theory: Field trip Jackson Bottom (combined lecture/lab)
3	13-Feb	W	Optimal Foraging Theory	
3	15-Feb	F	Optimal Foraging Theory	
4	18-Feb	M	Social Foraging	Independent project workshop (combined lecture/lab)
4	20-Feb	W	Independent project workshop (combined lecture/lab)	
4	22-Feb	F	Seminars: Altruism & Foraging	
5	25-Feb	M	EXAM 1	Anti-predator behavior: alarm calls of squirrels (combined lecture/lab)
5	27-Feb	W	Anti-predator behavior: alarm calls of squirrels (combined lecture/lab)	
5	1-Mar	F	Avoiding Predators	
6	4-Mar	M	Avoiding Predators	Communication I: Male guppy mate choice
6	6-Mar	W	Seminar: Anti-predator	
6	8-Mar	F	Communication	
7	11-Mar	M	Communication	Communication II: Female guppy mate choice
7	13-Mar	W	Communication	
7	15-Mar	F	Seminars: Communication	
8	18-Mar	M	Migration	Activity budgets: Field trip to Oregon Zoo (combined lecture/lab)
8	20-Mar	W	Activity budgets: Field trip to Oregon Zoo (combined lecture/lab)	
8	22-Mar	F	Migration	
9	25-Mar	M	Spring Break	Spring Break
9	27-Mar	W	Spring Break	
9	29-Mar	F	Spring Break	
10	1-Apr	M	Sexual selection theory	Independent Research Projects
10	3-Apr	W	Sexual selection theory	
10	5-Apr	F	EXAM 2	
11	8-Apr	M	Mating systems & Parental care	Independent Research Projects
11	10-Apr	W	Mating systems & Parental care	
11	12-Apr	F	Unusual mating systems	
12	15-Apr	M	Seminars: Sexual selection/Mating	Independent Research Projects
12	17-Apr	W	Alternative mating strategies	
12	19-Apr	F	Animal Learning	
13	22-Apr	M	Animal Cognition	Senior Projects Day (no class)
13	24-Apr	W	Senior Projects Day (no class)	
13	26-Apr	F	Seminars: Cognition/Learning	
14	29-Apr	M	Theory of Mind	Mating Behavior: Field trip to Fern Hill Wetlands (combined lecture/lab)
14	1-May	W	Mating Behavior: Field trip to Fern Hill Wetlands (combined lecture/lab)	
14	3-May	F	Research Project Presentations I	
15	6-May	M	Research Project Presentations II	Final Exam: 8.30-11am
15	10-May	F	Final Exam: 8.30-11am	

*Course schedule is flexible and timing may change somewhat throughout the semester

Other dates for your calendar

- 8 February: Last day to drop course with no record
- 12 April: last day to withdraw from the course