

## Animal Behavior Syllabus

Meets: MW 12:55pm-1:45pm WCOB 203; F 12:55-2:50pm (SCEN 606/UA Front Lawn)

Lab: F 12:55-2:50pm, + guided independent research project

Instructor: Dr. Erica Westerman (ewesterm@uark.edu)

Office: SCEN 732

Office hours: Tues 3:30-4:30pm, Wed 2-3pm

Course Slack Account: <https://uarkanimalbeh-oqk6469.slack.com>

A quick and easy way to communicate with Chance (TA) and I, as well as with groupmates and classmates. Particularly useful for virtual problem solving.

**Course Goals:** Students will learn the basic principles of animal behavior, including an introduction to the theory underlying such concepts as optimal foraging, cooperation, and honest signaling. Students will learn how to conduct animal behavior research, enhance their ability to critically read scientific literature, and improve their written and spoken communication skills.

**Learning Outcomes:** Students will learn how to conduct animal behavior research, enhance their ability to critically read scientific literature, and improve their written and spoken communication skills. Students will learn how to work in groups to design, conduct, analyze, and present animal behavior research. They will also learn the basics of R programming.

**Additional Learning Outcomes for Graduate Students:** In addition to the above Learning Outcomes, graduate students will learn how to prepare and present Animal Behavior concepts in a classroom setting, and how to conduct multivariate statistical analyses, including PCA and generalized linear mixed models.

**Main Forms of Assessment:** 2 midterm exams (First midterm: 15%, Second midterm: 15%), 1 cumulative final exam (16%). Study guide for 1 lecture, assigned by last name (3%). Oral presentation of independent research project (rough draft presentation, final presentation, participation during question portions of research symposium) (20%). Written report of independent research project (topic selection, justification/outline, experimental design/ethogram, preliminary results, rough draft, final draft) (20%). Attendance (4%: 2% lecture, 2% lab). Data collection for three class-wide experiments (4%). Introductory video (3%). There is one grade for the course and lab.

*For graduate students:* Preparation, practice talk, and delivery of 15-minute overview of a key concept in Animal Behavior to class (10%). Each midterm will only be 10% of final grade in adjustment for these presentations. Practice talk must be given to Dr. Westerman at least 5 days before class presentation date.

**Attendance Considerations for Illness/Emergencies:** This year we are conducting Animal Behavior lecture and lab in-person, but are prepared to flexibly adjust in response to adverse weather conditions, and will have temporary zoom available for those who are sick (COVID, flu, etc), or having an emergency. See “Notes about attendance” below for details on my virtual

attendance policy. Empathy, patience, kindness, and communication are keys for success, both with others and with oneself.

Please let me know if a situation arises that you feel may substantially impact your ability to learn or participate in class. There are many things that fit in this category, it is not limited to illness. I am committed to working with you through these situations, and am acutely aware of how sudden, severe, and difficult COVID-19 can be.

### **Notes about attendance:**

**Lecture attendance:** While all lectures will be recorded, in person/live is best! I will take in-person attendance, and if you are attending virtually, say something in the chat (which I will download) OR send me a question (e-mail or Slack) on the lecture material before the start of the next class (only works for 5 class periods). If you are sick or need to attend class virtually, that is 100% okay, for up to 5 classes (barring extreme circumstances). I now have many years experience fielding questions in-person and virtually simultaneously, so am sure I can make class an engaging experience for those attending virtually and in person.

**Lab attendance:** The first two weeks of lab will be in person and simultaneously live streamed and recorded. However, after the first two weeks of lab, we will be going outside almost every week (please dress appropriately!), and doing hands-on activities that cannot be live streamed, so in-person attendance is required. We have back-up plans for those who are sick, but in general lab is in-person only.

**Text:** Animal Behavior: An Evolutionary Approach 12<sup>th</sup> Edition by Dustin Rubenstein

**General Course Format:** MW lectures, F discussion/lab

### **Schedule**

Week 1 (8/18-8/22): **W** Behaviors as traits/role in evolution **F** Overview of syllabus/What do we mean when we say Animal Behavior? /Introduction to R  
Reading: R Chapter 1

Week 2 (8/25-8/29): **M** Proximate and ultimate causes of behavior **W** Brief History of Animal Behavior **F** Studying behavior/How to select a research topic/experimental design  
Reading: R Chapter 2 **Intro Video Due Wed, Aug 27**

Week 3 (9/1-9/5): **M** Labor Day, no class **W** Development of Behavior **F** collaborative work, pick team (of 3)/mini-experiment (learning to use binoculars, venturing out into the field)  
Reading: R Chapter 3, Papers (Proximate & Ultimate)

Week 4 9/8-9/12): **M** Behavioral Genetics **W** Neural mechanisms of behavior **F** Review of Intro to R/Ethograms (bring binoculars!)/R tutorial I  
Reading: R Chapter 4, Independent Papers **Research Topic due 9/12**

Week 5 (9/15-9/19): **M** Sensory Systems **W** Circadian Rhythms **F** Prep for next week/How to make methods & results reproducible/ discuss effect of time of day on behavior (independent data collection)/Proximate & Ultimate Paper Discussion

**Robin Observation Data 1 Due in Lab 9/19**

**Grad student key concept selection due by 9/19**

Reading: R Chapter 5

Week 6 (9/22-9/26): **M** R tutorial II (SCEN 606) **W** Hormones **F** Annual butterfly behavior data collection field trip

**Saturday Review Session**

**Justification & rough draft of Project Plan due 9/26**

Reading: Chapter 5

Week 7 (9/29-10/3): **M** Exam **W** Adaptation **F** how to write methods, experimental design/Ethogram II/Squirrel Experiment Part I

**Independent Robin data due 10/3**

Reading: R Chapter 6.2

Week 8 (10/6-10/10): **M** Optimal Foraging Theory/Marine Observations **W** Predation defense **F** present methods, constructive criticism/ ethograms due/ R tutorial III

**Experimental design and ethogram due 10/10**

Reading: R Chapter 6.1, Chapter 7.1

Week 9 (10/13-10/17): **M** Fall Break **W** Habitat Selection **F** Foraging Behavior II/R tutorial IV

Reading: R Chapter 7.2, Chapter 8.1, 8.2

Week 10 (10/20-10/24): **M** Migration **W** Communication **F** Honest Signaling/R tutorial V  
**(Marine Observations Data due 10/24)**

Reading: R Chapter 8.3, Chapter 9n

Week 11 (10/27-10/31): **M** Reproduction **W** Review **F** Analyzing behavioral data I- Exploratory statistics/How to write a results section

Reading: Review

Week 12 (11/3-11/7): **M** Exam **W** Mating Systems **F** paper discussion (how to write an abstract)/Analyzing behavioral data II- parametric and non-parametric tests

Reading: R Chapters 10, 11

Week 13 (11/10-11/14): **M** Parental Care, preliminary results due, **W** Cooperation **F** Analyzing behavior data III-Principle Components Analysis

**Preliminary Results due 11/10**

Reading: R Chapters 12,13

Week 14 (11/17-11/21): **M** Behavioral Plasticity **W** Behavioral Plasticity II **F** Butterfly facility field trip & Group Data Analysis (At the butterfly facility/group sign-up times)

**Rough Draft of term-paper due 11/17, practice presentations**

Reading: NA

Week 15 (11/24-11/28) **M** Discussion of Class Data **W** Thanksgiving break **F** Thanksgiving break

Week 16 (12/1-12/3): **MW** Project Presentations

Mandatory one-on-one meetings to discuss paper rough draft

**Final Draft of Paper Due Monday Dec 8<sup>th</sup>.**

**Final Exam:** TBD (probably Wednesday, Dec 10, 12:45pm-2:45pm)

### **University of Arkansas Academic Honesty Statement** (from

<https://honesty.uark.edu/faculty/index.php>)

As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail.

Each University of Arkansas student is required to be familiar with and abide by the University's 'Academic Integrity Policy' at [honesty.uark.edu/policy](https://honesty.uark.edu/policy). Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

### **Statement Regarding AI**

Artificial Intelligence is, at its core, an algorithm written by programmers (people) that uses information on the internet (produced by people) to answer questions in a human sounding way. Since it is designed by people, it (at least in all versions available to date) has the biases of those who wrote it, for better or worse. Since it uses information provided by people on the internet to generate answers, and doesn't, as of yet, differentiate content produced by experts and content produced by non-experts, and builds a "best guess" answer, content provided by non-experts can swamp out content provided by experts, as there are, by definition, more non-experts than experts on the internet. This is particularly true when dealing with topics such as Animal Behavior. Thus, it is a good idea to take any information you get from AI for this class with a hefty grain of salt. Current versions of AI also have an interesting habit of making up sources and "hallucinating" (programmer speak for making things up). In addition, there are a number of pending copyright issues associated with AI content. Please keep this in mind when writing your papers. Also, remember that I will be reading multiple drafts of your paper and giving you feedback, which you will need to address in subsequent drafts.

**Statement Regarding Note Selling and Distributing**

There are companies that will try to lure you into selling the notes you take in this class. Don't let these companies take advantage of you. Selling my notes to any commercial service I will consider a violation of my intellectual property rights and/or copyright law as well as a violation of the U of A's academic integrity policy. Continued enrollment in this class signifies intent to abide by the policy. Any violation will be reported to the Office of Academic Initiatives and Integrity.