

ANIMAL BEHAVIOR IN THE WILD

BIOE 142L: A virtual field course
Summer 2022: June 20- Aug 12



In this class you will learn the **ecological and evolutionary basis of animal behavior**, strengthen your **scientific skillset**, and conduct **hands-on behavior research** in a remote (not in-person) field setting.

While you will gain expertise in animal behavior, the general goal of this course is to develop your ability to observe the natural world, design research studies, collect data, communicate ideas, and- most of all- **think like a scientist**. We are thrilled to have you here and look forward to supporting your growth as a scientist!

Course Learning Goals

By the end of this course, you will be able to...



1. **Identify and explain** fundamental concepts and methods in the scientific study of animal behavior, then **apply** these concepts to interpret scientific literature.



2. Carefully **observe and describe** animal behavior, **think critically** about what is being observed, and **generate hypotheses** to explain observations.



3. **Apply the scientific method** to design a research study on animal behavior, collect appropriate data to test hypotheses, and use **quantitative reasoning** to interpret the results.



4. **Engage** within a scientific community of peers by communicating scientific concepts and providing caring, critical, constructive feedback.



5. **Reflect** on your individual learning process and **relate** the skills learned in this course to your future career goals beyond the classroom.

Meet Your Teaching Team



Instructor:

Dori Weiler (she/her)
dweiler@ucsc.edu

Student Hour Times:

Weds 3-4 pm, Thurs 4-5 pm
Also by appointment- email me!

Zoom ID: [972 1422 8823](#)

Password: 947146



Course Reader:

Megan Molinari (she/her)
mmolina@ucsc.edu

Student Hour Times:

See Canvas home page

Zoom ID: TBD- See Canvas
Zoom tab for updates

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STUDENT SUCCESS

Learning science can be a challenge, but we are committed to creating an accessible and inclusive environment where every student is can succeed! Below are resources and information that will help us create a collaborative, positive community.

Principles of Community

It is my intent that all students feel included and are able to learn and achieve their goals in this course. The diversity that all students bring to this class is a resource, strength, and benefit to us all. To foster an inclusive learning community, I ask all of us to:

- Share our unique experiences, values, and beliefs
- Be open to the views of others and value the uniqueness of our colleagues
- Appreciate the opportunity we have to learn from each other in this community
- Value each other's opinions and communicate feedback in a respectful manner
- Keep confidential discussions within our community that are of a personal (or professional) nature
- Use this opportunity together to discuss how we can create an inclusive environment in this course and across the university

Course Materials

In this class, you will need a computer with reliable internet connection and working microphone. Electronic resources we will use throughout the course include:

- [Canvas](#), our primary course website
- [Zoom](#), Discussion section meeting ID: 929 0533 1721, passcode: 769841
- [Slack](#)
- [GoogleSheets](#) or [Microsoft Excel](#)
- [R and R Studio](#) statistical software



There is **NO REQUIRED TEXTBOOK**. All readings will be provided.

Accessibility

We strive to create an academic environment that supports and encourages UCSC's diverse student body by making our learning community as accessible as possible. **If you encounter materials that are not accessible to you, experience a barrier to participation, or have any questions or concerns about the classroom environment, you are encouraged to bring this to your instructor's attention**- we will gladly work with you to help you feel supported and included!

We are also happy to honor and accept any accommodations letters from the Disability Resource Center (DRC). I encourage all students who may benefit from learning more about DRC services to contact DRC by email at drc@ucsc.edu.

How to be Successful in this Course

Come to Student Hours



In student hours, we...

- Answer content questions
- Brainstorm project ideas
- Get to know you and your strengths
- Offer advice toward future career goals
- And more!

Keep a Lab Notebook



In a (digital or physical) notebook, you can...

- Take notes on lecture and readings
- Record animal behavior data
- Brainstorm and collect project ideas

Connect with Your Peers



We will use Slack to submit graded discussion posts, but we also encourage you to use it to...

- Chat with peers
- Share cool animal behavior content
- Ask questions.

Ask for Help When You Need It



If you're stuck on something for more than 15 minutes, ask for help!

- Message Slack
- Bring your question to student hours or discussion section
- Contact your instructors

Complete Assignments



We designed these to...

- Check your learning and help you identify areas of growth
- Provide a low-stakes form of assessment
- Reinforce skills and concepts you learn



COURSE MAP

On the next two pages, you'll find details about the course structure & grading

Course structure overview: This course is organized around weekly modules that build on each other, with **all materials, readings, and assignments available on Canvas**. We will meet in an informal Zoom discussion section once per week to review and practice material. The course also has 3 labs involving a short writeup and one final research project. You are expected to work ~15 hours per week to satisfy all course requirements. See the table below for assignment details and grade breakdowns by assignment:

Assignment & Assessment Breakdown

Weekly Module Assignments

These weekly activities are designed to support learning key concepts and developing skills related to the Course Learning Goals, listed on the previous page. Each module will begin with a Module Overview page to orient you to the weekly learning goals, assignments, and important deadlines.

Assignment type	% grade	Assignment details
Scientific skill practice & response (~2 hrs/ week)	15%	The goal of these assignments is to give you hands-on experience learning practical research skills . To complete this assignment, you will practice a skill through a tutorial, then write a response about your experience.
Lecture & quiz (~1 hr/ week)	15%	Lecture videos will provide an overview of the fundamental concepts of studying animal behavior. After watching a short lecture, you will have two attempts to take a quiz (multiple-choice/ short answer) to determine whether you remember and understand lecture material.
Reading & response (~3 hrs/ week)	15%	Reading assignments deepen your animal behavior knowledge with detail about research frameworks, experimental design, and data analysis. Written responses ask you to engage with and apply the reading material to deepen your understanding.
Collective wisdom activity (~3 hrs/ week)	15%	These weekly assignments are designed to leverage our collective knowledge and learn from each other's experience as we practice scientific skills and refine our research projects.
Learning reflection (~1 hrs/ week)	10%	At the end of each module, you will write a short reflection on your learning process . Research shows that this type of reflection, known as metacognition, has been shown to increase learner's ability to transfer and adapt learning to new contexts and tasks, and increases the effectiveness of learning overall.

How will these weekly assignments be evaluated?

Written responses and skill assignments **do not have single correct answers** and are addressed based on your engagement with the material and effort (i.e. did your answer address the prompt and draw on and apply material learned in class). You will receive weekly feedback on all written assignments.

Assignment & Assessment Breakdown (Continued)

Cumulative Assignments

These cumulative activities are designed to integrate your knowledge and skills throughout the course and provide helpful "checkpoints" for you to ensure you understand the material. Your final project represents the culmination of your knowledge in the class and offers an authentic research experience, emulating what it might be like to have a career has an animal behavior researcher.

Assignment type	% grade	Assignment details
Lab reports (3 reports, ~2-3 hours each)	15%	The goal of lab assignments is to practice combining your scientific skills . During labs you will collect basic behavioral data to help you prepare for your final project. This practice during lab will help you learn what works for a research project- and what might not work- before committing to a final project.
Final project (~8- 10 hrs total)	15%	For your project, you will then design a simple study to ask and answer a question about animal behavior, develop methods and collect data, produce graphs using your data, and perform statistical analyses to draw conclusions. You will share your work as a poster to the class and complete a written summary report.

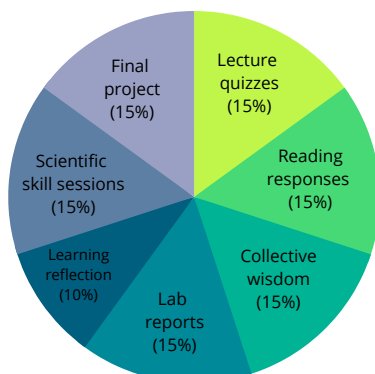
How will these cumulative assignments be evaluated?

Your lab reports are a chance to practice combining skills and writing about your experience in a written report, which will be evaluated based on your engagement with the material and effort (similar to written weekly assignments). Final projects will be assessed on whether they follow the project guidelines, using a rubric shared ahead of time.

Deadlines & Late Assignments

Module assignments open on Canvas each Sunday at 12:01 am. Due dates are either **Tuesday or Saturday**- see modules for specific dates. Assignments must be submitted by 11:59 pm on the deadline for full credit.

With this in mind, we recognize that in real life, sometimes things happen that can throw any of us off course! For this reason, all students are allowed **5 "late passes" for small assignments** (weekly quizzes, reading responses, skill assignments) and **1 "late pass" for a single lab**. **When you use a late pass, you can be a day late submitting your work- without any penalty.** We will track late passes for you so you do not need our permission to use a late pass, but if you exceed your late pass allowance, you will not receive credit for any further assignments that are late. If you are experiencing circumstances that interfere with your ability to complete your assignments, please let your instructors know ASAP and we will work with you to find solutions.



A note about assignments in this course...

If you take a look at the pie chart on the left, you may notice there are a lot of different assignments in this class, and none are worth the majority of your grade. This was a deliberate choice because: **1)** This is a lab class, and we have a lot of unique material to learn, and **2)** Using frequent low-stakes assignments gives you more opportunities for practice and feedback over the quarter. However, if you feel overwhelmed or need help managing the material **please contact Dori (dweiler@ucsc.edu) for help**- we can help you get back on track!

COURSE SCHEDULE

Assignment schedule may be modified based on student needs. Please check the Module Overview at the start of each week for details.

	Lecture & Quiz <i>Due weekly on Tues</i>	Reading <i>Due weekly on Tues</i>	Scientific Skill <i>Due weekly on Saturday</i>	Collective Wisdom <i>Due weekly on Saturday</i>	Learning Reflection <i>Due weekly on Saturday</i>
Course Orientation					
"WEEK 0" <i>All due June 22</i>	Course orientation video (no quiz)	None	Growth mindset: Knowing how to "not know"	Meet your learning community	Welcome survey
Phase 1: Foundations in Animal Behavior					
WEEK 1 <i>June 20 - 25</i>	Introduction to animal behavior research: How & why questions	Davies, Krebs, & West Ch 1: Natural Selection, Ecology, and Behavior	Practicing curiosity	Hypothesis activity: Syllabus annotation	Reflection: What you learned, what went well, and what was challenging
WEEK 2 <i>June 26 - July 2</i>	Asking and answering ultimate questions	Martin & Bateson Ch 3: Getting Started	Describing and quantifying behavior	Learning from and with others: Lessons from our first observations	Reflection: What you learned, what went well, and what was challenging
Lab 1, due July 2: Observing, Describing, and Quantifying behavior					
Phase 2: Designing a Research Study					
WEEK 3 <i>July 3 - 9</i>	Asking and answering proximate questions	Martin & Bateson Ch 5: Recording Methods	Asking questions and generating hypotheses	Reading and annotating scientific literature	Reflection: What you learned, what went well, and what was challenging
WEEK 4 <i>July 10 - 16</i>	Costs & benefits of being social	Martin & Bateson Ch 8: How good is your research design? AND Dawkins Ch 4: Three principles of observational design	Designing studies to answer questions and test hypotheses	Final project ideas and peer feedback	Reflection: What you learned, what went well, and what was challenging
Lab 2, due July 16: Research Proposal					
Phase 3: Analyzing Behavior Research					
WEEK 5 <i>July 17 - 23</i>	Finding, competing for, and choosing food	Beckerman & Petchey Ch 4: Import, Explore, Graph	Learning from and with others: Using graphs to ask and answer questions		Reflection: What you learned, what went well, and what was challenging
WEEK 6 <i>July 24 - 30</i>	Finding, competing for, and choosing mates	Beckerman & Petchey Ch 5: Doing Your Statistics in R	Learning from and with others: Using statistical analyses to ask and answer questions		Reflection: What you learned, what went well, and what was challenging
Lab 3, due July 30: Graphing and Analyzing Data					
Phase 4: Communicating Behavior Research					
WEEK 7 <i>July 31 - Aug 6</i>	Human behavior	Find and read a journal article (note: skill and reading deadlines switch this week)	Understanding and drafting your final poster presentation	Share your reading assignment journal article	Reflection: What you learned, what went well, and what was challenging
WEEK 8 <i>Aug 7 - 13</i>	Societal benefits of studying behavior	None this week- focus on final project!	Careers in animal behavior	Final project poster presentation (in section & Canvas)	Final course reflection and closing survey
Final Project Report, Due Aug 13					

