

Animal Physiology Course Syllabus

General Course Information:

Instructors: Philip Washbourne pwash@uoneuro.uoregon.edu
Lisa Wagner lwagner8@uoregon.edu

GEs: Molly Shallow mshallow@uoregon.edu
Nick Sattler nsattler@uoregon.edu

Office Hours: Phil: by Zoom 11-12pm, Thursdays ,
passcode **Henle**
Lisa: Hue 130 12 - 1pm, Mondays
Molly: by Zoom 9 - 9:50am, Fridays
Nick: by Zoom 10 - 10:50am, Thursdays
other times available by appointment

Classes: Lectures: by Zoom, 8:30 - 9:50, Tuesdays and
Thursdays, passcode **pronghorn**
Labs: Section 1 10 - 11:20, Mondays; 10 - 12:50,
Wednesdays
Section 2 2 - 3:20, Mondays; 2 - 4:50,
Wednesdays

Textbook: Randall, Burggren, French; Animal Physiology, 5th Edition
(available at the library)

Prerequisites: BI214 or BI253

Course Description:

This course will provide an introduction to physiological mechanisms and principles across the animal kingdom. Although many animals face similar challenges, such as providing a stable pH and ion concentration for their tissues, providing energy and oxygen, sensing their environment, they have evolved different ways of tackling these challenges.

Expected Learning Outcomes:

- 1) A broad-based knowledge of physiology at molecular, cellular, organ and organismal levels in various phyla.
- 2) An awareness of biological diversity and an awareness that the same physiological problems have been solved in a variety of ways by different organisms.
- 3) An understanding of the process and application of scientific inquiry.
- 4) An ability to apply mathematical or statistical approaches to understanding biological information; and an ability to interpret graphical representations of biological information.
- 5) An ability to communicate scientific ideas clearly in writing.

Estimated Student Workload:

This course consists of a lecture portion (2 1.5hr lectures per week) and a lab portion (2 3hr labs per week). There will be a total of 20 lectures and 16 lab sessions.

You will be expected to prepare for lectures by reading assigned chapters (or pages of chapters) and by completing short quizzes in Canvas. You will be expected to prepare for labs by reading the lab protocols in detail before attending the lab.

There will be 3 exams, two midterms and one final, with the material pertaining to the lecture portion of the class. All 3 exams will be based on multiple choice and short answer questions. Only one of the two midterm exams will contribute to your grade.

You will write multiple assignments based on the lab sessions. There will be a final project that students will design, perform, analyze, present and write about. For more details see lab syllabus.

How Grades will be determined:

Grades for BI356 will be based upon lecture and lab using the following proportions:

Lecture 1: 16 reading tests (10%)

Lecture 2: two midterms (20%)
Lecture 3: final exam (20%)
Lab section: (50%)

Course Policies:

Plagiarism: The written exams, lab reports, assignments, proposals must be your own work. Although working in a group is encouraged for the lab assignments, it is important to be able to formulate the group thoughts in your own words. Plagiarism will not be tolerated and 0 points will be awarded for that piece of coursework.

[Lab Syllabus](#)

Schedule:

Animal Physiology Laboratory Winter 2022

Lab Instructor - **Dr. Lisa Wagner** - Lwagner8@uoregon.edu

Office Hours: Mon 12-1 in Huestis 130

Lecture Instructor- **Dr. Phil Washbourne** - pwash@uoneuro.uoregon.edu

GE- **Molly Shallow** - mshallow@uoregon.edu

GE- **Nick Sattler** - nsattler@uoregon.edu

Laboratory Overview: During the laboratory portion of this Animal Physiology course, students have the opportunity to hone research design skills by developing and carrying out experiments that investigate topics discussed in lecture. As well, students will carry out dissections that give eyes and hands on experience with the anatomical structures discussed in class. During experimental developments weeks, Mondays are, primarily, spent collaborating with team members to produce testable questions, form reasonable hypotheses and outline experimental methods. Students will then carry out their experiments during Wednesday's lab.

In addition, students will work collaboratively throughout the quarter researching, developing and presenting a scientific research proposal that focuses on an animal of their choice. This work will culminate in a group written proposal, a group oral presentation and a group scientific poster presentation.

Lastly, students will demonstrate a basic knowledge of the topics from each lab, not excluding lecture, on a laboratory exam. By the end of the course you will be able to:

1. Properly and safely use animals and laboratory equipment to conduct physiological research
2. Form hypotheses and design experimental methods to answer scientific questions related to animal physiology
3. Understand scientific method and convey that understanding effectively in a project proposal
4. Effectively communicate your ideas visually (poster), orally (presentation) and in written form (final paper.)
5. Convey an understanding of the physiologic processes and anatomical features that are the focus of each lab

Lab Policies:

- Please be on time. Tardiness is disruptive to all of us.
- Proper personal protective equipment should be worn, and instructions should be followed to ensure safety for the whole course.
- Drinks are permitted during the lab time. However, they should not be consumed at the workbench and should be stored in a designated area at the front of the classroom.
- **No food is permitted in lab** because consuming anything at your workbench, risks contamination to your food. However, if you need to eat, feel free to step outside of the lab to do so.
- Please store backpacks in the spaces under the workbenches.
- We expect and appreciate that you will clean up your workspace at the end of lab and return it to its original state.

Assessments: The assessments assigned during lab are designed to help you identify skills and concepts that are concrete, and others that may need more work. The intention of the assessment is that when you

identify these skills and concepts that need more work, you will be able to focus your studying and learning to improve them. Please refer to the provided syllabus for due dates. Further details will be provided in lab time.

Final Project: This term you will design an original study on any physiological aspect of any animal of your interest. You have the ability to choose your team mate(s), your exact topic and the experimental design. One goal of this exercise is for you to get hands-on experience using scientific methods to research and design a research project worthy of recognition. The second goal of this exercise is that you hone your skills as a collaborative scientist, because collaborative science among individuals with diverse but complementary perspectives, are becoming increasingly common and indisputably beneficial to the entire process. Therefore, you will work in teams of at least 3-4 people (no individual projects will be accepted). Lastly, you will present your project proposal in a scientific setting. We will hold a mock scientific conference in class, during week 9, where you and your team mate(s) will present your jaw dropping, innovative, research proposal to your current peers and potential future colleagues.

Grades:

75 Points	Lab activities
25 Points	Lab final
100 Points	Final Project (Breakdown Below)
	Poster session – up to 30 points
	Oral presentation – up to 30 points
	Final Draft of scientific research proposal – up to 30 points
	Collaboration assessment- up to 10 points

Collaborative learning: We utilize collaborative learning techniques in both lecture and lab and it is imperative that all students participate in these activities. There is overwhelming evidence that students who participate in collaborative learning activities perform better on exams. Collaborative learning is widely accepted as an effective learning tool that promotes higher level thinking. As well, these practices promote socialization and trans-cultural communications among students. It involves students working together to achieve common goals or complete group tasks – goals and tasks that students would be unable to complete by themselves.

Late Assignments: In order to receive credit for lab assessments, you must be present and participating in lab. Late assessments (of any kind) will not be accepted. **FINAL PROPOSALS WILL NOT BE ACCEPTED AFTER WEDNESDAY OF WEEK 10 (3/9/2022).**

Academic Integrity:

- Suspected academic integrity violations will be handled with the teaching staff and reported as inappropriate.

- The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at researchguides.uoregon.edu/citing-plagiarism.

Inclusivity and Accessibility: Freedom of academic inquiry, equity among all of our diverse array of students, and responsiveness to individual needs so that everyone is able to perform at their best is a core value for the UO and the Animal Physiology team. Accommodations for documented disabilities will be made most easily if you let us know as soon as possible what accommodations are needed; please provide letters from the Accessible Education Center (<https://aec.uoregon.edu>) as soon as possible. If you have other needs, documented or not, please let me know and I will do my best to accommodate you. While we cannot all totally understand each other's personal experiences, we can all work to eradicate discrimination and we can all share and benefit from each other's perspectives with respect and generosity. Courtesy and thoughtfulness will enrich our journey together this term, and are expected from everyone.

The University of Oregon is working to create inclusive learning environments. Please notify us if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

Cell Phones, computers and other electronic devices: You are invited and welcome to use your own electronic devices during lab **for learning purposes only!!** Please turn off and put away your cell phones during class otherwise. Engaging in social media activities or texting friends is not appropriate in class and will not be tolerated. One computer per lab group will be provided, however, if you would like to work on your own computer, bring it in. Do not save your files to the laboratory computer as student files are purged each week. Instead, save your work to a thumb drive or on a file sharing platform such as google drive.

Professional conduct: Academic dishonesty devalues the reputation of our institution, its faculty, its students, and your academic degree. Academic misconduct is particularly unfair for students who do their work with integrity and honor. Please adhere to the University Student Conduct Code (available at <http://studentlife.uoregon.edu/StudentConductandCommunityStandards/>).

Date	Lab	Assessment /points	Final project progress-get checked off at the end of class
M- 1/3/22	No Lab		
W- 1/5/22	Intro, scientific method/Urban myth activity/box activity/find team mates		Find team mates, exchange information- consider target species
M- 1/10/22	1. How to read scientific papers 2. Design Osmosis experiment		Declare target animal and possible physiological aspect
W- 1/12/22	Carry out osmosis experiment	Hand in: experimental design (one per team)- 15 pts	
M- 1/17/22	MLK day - No Lab		Literature review - should have 4-6 good papers
W- 1/19/22	1. Introduction to Lab chart 2. Guided experiment: Action potentials in earthworm giant nerve fibers	Hand in: Question set one per team 15 pts.	
M- 1/24/22	1. Pig pluck ppt. 2. Project meetings		Literature review- rough draft state hypothesis
W- 1/26/22	Pig pluck dissection Eye dissection	Anatomy points in lab practical	
M- 1/31/22	Sensory nerve prep		Methods outlined- go over your rough draft with GE or instructor
W- 2/2/22	Carry out guided sensory nerve activities (cockroach)	Question set – (one per team) -15 points	
M-2/7/22	Design photoreceptor behavioral assay		Conclusion outline
W- 2/9/22	Carry out photoreceptor behavioral assay	Experimental design (one per team) -15 points	
M-2/14/22	Poster work		
W- 2/16/22	Presentation work		First Draft of final paper
M-2/21/22	Design thermos-metabolic relationships of cockroaches		Poster designed
W- 2/23/22	Carry out cockroach experiment	Experimental design (one per team)- 15 pts	
M-3/28/22	Review/Project work		
W- 3/2/22	Lab Exam	25pts	
M-3/7/22	Conference begins: Poster Session	Poster 30pts	
W-3/9/22	Oral Presentations	Presentation 30 pts. Final draft of paper 30pts. Contribution assessment 10pts.	Final draft of final paper due