

# BIOL 5610 Animal Physiology lab

## Course Description

This course consists of laboratory exercises designed to explore principles of animal physiology using computer simulations, tissue models, and animal preparations. Emphasis is placed on hypothesis design and data interpretation.

## Fees

Registration for this course requires payment of a \$160 laboratory fee. This fee is used to buy lab supplies and equipment. These fees are not covered by your tuition payment.

## Course Objectives

By the end of this course, you will:

1. Learn fundamental principles regarding how cells, organs and animals function.
2. Apply knowledge of fundamental principles of animal physiology to solve problems.
3. Gain experience presenting and interpreting data.
4. Gain experience synthesizing information from the scientific literature.

## Instructor

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## Course Resources

There is no lab manual for this course but I will highlight sections of the main text (Animal Physiology, 4<sup>th</sup> edition (ISBN 1605354716) by Hill, Wyse and Anderson) that will help you understand the lab assignments.

## Course Requirements

Each student will:

1. Complete all ten (10) Hypothesis & Prediction Assignments.
2. Complete all five (5) Figure Lab Reports Assignments.
3. Complete all five (5) Short Lab Report Assignments.
4. Complete the Literature Review Assignment.
5. Complete the four (4) Short Assignments and Final Lab Report.
6. Read the instructions in the Lab Worksheets and the background material from the textbook before class.
7. Come prepared to gather and analyze data in class.

# Evaluation Methods and Criteria

There are ten (10) hypothesis/prediction assignments, each worth 2 points (20 points total). There will be five (5) figure lab reports assigned, each worth 10 points (50 points total). There will be five (5) short lab reports assigned, each worth 20 points (100 points total). The final full lab report is worth 80 points. Points for this assignment will be divided between the final report (30 points); four short assignments (5 points each); and a literature review (30 points total). Total points possible 280 in the course. There will be no makeup labs. **You must turn in the literature review and final lab report to pass this class.**

Figure Lab Reports: These reports consist of a graphical representation of results with a figure legend. The results of the lab exercises are summarized in graphs, tables, and charts. The figure legend should contain enough information so that the figure can be completely understood by reading the legend. All information about curve fitting, statistical analysis, and the meaning of symbols should be in the figure legend. Your figure legend should include information about the hypotheses tested in the experiment as well as analysis and conclusions based in the results. **Figures and figure legends should not exceed two (2) pages (12-point font, 1.5 spacing for text). Figure lab reports are due at 12 noon on the following Thursday (see schedule below).**

Short Lab Reports: These reports should consist of a results section and figures. The results section should explain what data were obtained and how the experiments you performed tested hypotheses. Your results should include information about the hypotheses tested in the experiment as well as analysis and conclusions based in the results. The figures can include graphs, tables, and charts that summarize the data obtained. All figures should include a figure legend that contains enough information so that the figure can be completely understood by reading the legend. All information about curve fitting, statistical analysis, and the meaning of symbols should be in the figure legend. **Text and figures should not exceed two (2) pages (12-point font, 1.5 spacing for text). Short lab reports are due at 12 noon on the following Thursday (see schedule below).**

Short Literature Review: A literature review is a descriptive summary of research on a topic that has previously been studied. To complete this review, you will choose a topic in animal physiology that you are interested in studying and formulate an inquiry question that specifically describes what would like to know about your topic. You will write both an outline and a final 3-4 page essay describing how you have answered you question by researching information in the scientific literature. Your review should have six (6) references from original research articles. **The outline for this assignment is due at 12 noon Thursday February 20. The literature review assignment is due at 12 noon on Thursday, March 12. Text for either assignment should not exceed four (4) pages (12-point font, 1.5 spacing for text).**

Final Lab Report: This report should consist of all the sections of a scientific article including 1) title, 2) abstract, 3) introduction, 4) materials and methods, 5) results, 6) discussion, 7) figures, charts, and graphs, 8) references. References must include at least three articles from peer-reviewed, scientific journals. **Text and figures should not exceed four (4) pages (12-point font, 1.5 spacing for text). This report is due at 12 noon on Thursday, April 23.**

## Grade Scheme

The following grading standards will be used in this class:

Grade	Range
A	100 % to 93.0%
A-	< 93.0 % to 90.0%
B+	< 90.0 % to 87.0%
B	< 87.0 % to 83.0%
B-	< 83.0 % to 80.0%

Grade	Range
C+	< 80.0 % to 77.0%
C	< 77.0 % to 73.0%
C-	< 73.0 % to 70.0%
D+	< 70.0 % to 67.0%
D	< 67.0 % to 60.0%
F	< 59.0 % to 0.0%

## Course Schedule/Outline

Here is a downloadable .pdf of the course schedule.

CAP\_SPR2020\_LabSyllabus.pdf (<https://usu.instructure.com/courses/577096/files/76572026/download?verifier=kR2GUzr7CApZ9eXaXIBc70SsmS2MWgFDV8Z84s3g&wrap=1>)

## Nonattendance Policy

### Students May Be Dropped For Nonattendance

If a student does not attend a class during the first week of the term or by the second class meeting, whichever comes first, the instructor may submit a request to have the student dropped from the course. ***(This does not remove responsibility from the student to drop courses which he or she does not plan to attend.)*** This option is typically used for classes that are full and the instructor is trying to make a seat available for another student, but may be considered for other courses. Requests must be made during the first 20 percent of the course and will be considered on an individual student basis. Students who are dropped from courses will be notified by the Registrar's Office through their preferred e-mail account (see 2018-2019 General Catalog (<http://catalog.usu.edu/content.php?catoid=12&navoid=3955>)).

## Assumption of Risk

All classes, programs, and extracurricular activities within the University involve some risk, and certain ones involve travel. The University provides opportunities to participate in these programs on a voluntary basis. Therefore, students should not participate in them if they do not care to assume the risks. Students can ask the respective program leaders/sponsors about the possible risks a program may generate, and if students are not willing to assume the risks, they should not select that program. By voluntarily participating in classes, programs, and extracurricular activities, a student does so at his or her own risk. General information about University Risk Management policies, insurance coverage, vehicle use policies, and risk management forms can be found at: <http://www.usu.edu/riskmgmt/> (<http://www.usu.edu/riskmgmt/>)

## Library Services

All USU students attending classes in Logan, at our Regional Campuses, or online can access all databases, e-journals, and e-books regardless of location. Additionally, the library will mail printed books to students, at no charge to them. Students can also borrow books from any Utah academic library. Take advantage of all library services and learn more at [libguides.usu.edu/rc](http://libguides.usu.edu/rc). (<http://libguides.usu.edu/rc>)

## Classroom Civility

Utah State University supports the principle of freedom of expression for both faculty and students. The University respects the rights of faculty to teach and students to learn. Maintenance of these rights requires classroom conditions that do not impede the learning process. Disruptive classroom behavior will not be tolerated. An individual

engaging in such behavior may be subject to disciplinary action. Read Student Code Article V Section V-3 (<https://studentconduct.usu.edu/studentcode/article5>) for more information.

# University Policies & Procedures

## Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. Faculty Code Policy #403 (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>) further defines academic freedom and professional responsibilities.

## Academic Integrity – "The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:

*"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."*

A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

## Academic Dishonesty

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University's Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating:** using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
  - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually;"
  - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
  - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
  - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
  - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
  - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification:** altering or fabricating any information or citation in an academic exercise or activity.
- **Plagiarism:** representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

For additional information go to: ARTICLE VI. University Regulations Regarding Academic Integrity (<https://studentconduct.usu.edu/studentcode/article6>)

## **Sexual Harassment/Title IX**

Utah State University is committed to creating and maintaining an environment free from acts of sexual misconduct and discrimination and to fostering respect and dignity for all members of the USU community. Title IX and USU Policy 339 (<http://www.usu.edu/policies/339>) address sexual harassment in the workplace and academic setting.

The university responds promptly upon learning of any form of possible discrimination or sexual misconduct. Any individual may contact USU's Office of Equity (<https://equity.usu.edu/>) for available options and resources or clarification. The university has established a complaint procedure to handle all types of discrimination complaints, including sexual harassment (USU Policy 305 (<http://www.usu.edu/policies/305/>)), and has designated the Office of Equity Director/Title IX Coordinator as the official responsible for receiving and investigating complaints of sexual harassment.

## **Withdrawal Policy and "I" Grade Policy**

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

## **Students with Disabilities**

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) (<http://www.usu.edu/drc/>) as early in the semester as possible (University Inn # 101, (435) 797-2444, [drc@usu.edu](mailto:drc@usu.edu) (<mailto:drc@usu.edu>)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

## **Diversity Statement**

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Division of Student Affairs: <https://studentaffairs.usu.edu> (<https://studentaffairs.usu.edu/>), (435) 797-1712, [studentservices@usu.edu](mailto:studentservices@usu.edu) (<mailto:studentservices@usu.edu>), TSC 220
- Student Legal Services: <https://ususa.usu.edu/student-association/student-advocacy/legal-services> (<https://ususa.usu.edu/student-association/student-advocacy/legal-services>), (435) 797-2912, TSC 326,
- Access and Diversity: <http://accesscenter.usu.edu> (<http://accesscenter.usu.edu/>), (435) 797-1728, [access@usu.edu](mailto:access@usu.edu) (<mailto:access@usu.edu>); TSC 315
- Multicultural Programs: <http://accesscenter.usu.edu/multiculture> (<http://accesscenter.usu.edu/multiculture>), (435) 797-1728, TSC 315
- LGBTQA Programs: <http://accesscenter.usu.edu/lgbtqa> (<http://accesscenter.usu.edu/lgbtqa/>), (435) 797-1728, TSC 3145
- Provost's Office Diversity Resources: <https://www.usu.edu/provost/diversity> (<https://www.usu.edu/provost/diversity/>), (435) 797-8176

You can learn about your student rights by visiting:

The Code of Policies and Procedures for Students at Utah State

University: <https://studentconduct.usu.edu/studentcode> (<https://studentconduct.usu.edu/studentcode/>)

## **Grievance Process**

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: Article VII (<https://studentconduct.usu.edu/studentcode/article7>).

### **Full details for USU Academic Policies and Procedures can be found at:**

- Student Conduct (<http://www.usu.edu/studentconduct>)
- Student Code (<https://studentconduct.usu.edu/studentcode/>)
- Academic Integrity (<https://studentconduct.usu.edu/studentcode/article6>)
- USU Selected Academic Policies and Procedures (<http://www.usu.edu/provost/faculty-life/syllabus.cfm>)
- USU Academic Policies and Procedures (<http://catalog.usu.edu/content.php?catoid=4&navoid=546>)
- Academic Freedom and Professional Responsibility Policy (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>)

### **Emergency Procedures**

In the case of a drill or real emergency, classes will be notified to evacuate the building by the sound of the fire/emergency alarm system or by a building representative. In the event of a disaster that may interfere with either notification, evacuate as the situation dictates (i.e., in an earthquake when shaking ceases or immediately when a fire is discovered). Turn off computers and take any personal items with you. Elevators should not be used; instead, use the closest stairs.