



ZOO*3610 Lab Studies in Animal Physiology I

Fall 2019

Section(s): C01

Department of Integrative Biology

Credit Weight: 0.25

Version 2.00 - June 10, 2019

1 Course Details

1.1 Calendar Description

This hands-on laboratory course will provide practical experience in comparative animal physiology and complement themes covered in the lecture course (ZOO*3600). Students will learn skills and techniques used for conducting experiments on living animals with the goal of characterizing physiological processes. Students will learn how to collect data, statistically analyze results and write formal laboratory reports.

Pre-Requisites: STAT*2040 or STAT*2230
Co-Requisites: ZOO*3600
Restrictions: ZOO*3200

1.2 Course Description

This course will provide practical experience in comparative animal physiology. Students in this class will conduct laboratory experiments, including some on living tissues, using various tools and instruments. Through a variety of exercises, the students will learn how to apply the scientific method to the study of physiology, how to collect and statistically analyze experimental data, and how to write a formal laboratory report. The exercises completed in this course will complement the material taught in Comparative Animal Physiology I (ZOO*3600).

1.3 Timetable

Labs will be held in SCIE 3314 and are scheduled weekly for a total of 10 lab days.

Section: Your lab days are:

101 Monday

Section: Your lab days are:

102 Tuesday

104 Thursday

1.4 Final Exam

This course does not employ a final exam.

2 Instructional Support**2.1 Instructional Support Team**

Instructor:	Peter S. Smith
Email:	pssmith@uoguelph.ca
Telephone:	+1-519-824-4120 x53676
Office:	SCI 3313

2.2 Teaching Assistants

Teaching Assistant:	TBA TBA
----------------------------	---------

Teaching Assistant:	TBA TBA
----------------------------	---------

3 Learning Resources**3.1 Required Resources****Lab Manual (Lab Manual)**

Lab Studies in Animal Physiology I lab manual (manual available for sale from department)

Dissecting Kit (Equipment)

A simple dissecting kit will be useful for a few of the labs. This should minimally consist of tissue forceps, fine forceps, and a small pair of scissors. You do not need to buy an extensive kit for this course.

Courselink (Website)

<https://courselink.uoguelph.ca>

This course will make use of the University of Guelph's course website on D2L (via Courselink) for notices and distribution of information. Consequently you are responsible

for all information posted for ZOO*3610 on the Courselink site, or email sent to your university account from this site. Please check it regularly. Course lab data and discussions will also be posted here.

3.2 Additional Resources

Undergraduate Calendar (Website)

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations, which apply to undergraduate programs.

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Utilize the scientific method to design laboratory experiments.
 2. Utilize a variety of laboratory equipment to collect physiological data
 3. Measure the activity of nerves and/or muscles and characterize their activity.
 4. Characterize liver function in live trout
 5. Properly statistically analyze and interpret laboratory results.
 6. Create a properly formatted data figure
 7. Write a coherent and concise laboratory report
-

5 Teaching and Learning Activities

5.1 Course Content

Lab Activities – this is not a lab schedule

LAB	Lab activity and/or experimental study	Associated Assignment
------------	---	------------------------------

- | | | |
|---|---------------------------------------|--------------------|
| 1 | Intro to lab tools and techniques | Figure and caption |
| 2 | Quantifying passive transport through | Results and Figure |

LAB	Lab activity and/or experimental study	Associated Assignment
	an artificial membrane	
3	Nerve / Muscle Physiology Instrumentation	Data collection and analysis
4	Characteristics of neuronal activity	Data collection and analysis
5	Characteristics of muscle activity	Lab Report
6	Measuring Glucose in Biological Samples	Figure and caption
7	Hormonal control glucose metabolism	Lab Report

6 Assessments

6.1 Assessment Details

Lab 1 - Figure (5%)

Date: Mon, Sep 9 - Fri, Sep 20

Learning Outcome(s) Addressed: 2, 6

Lab 2 - Results and Figure (10%)

Date: Mon, Sep 16 - Fri, Sep 27

Learning Outcome(s) Addressed: 1, 2, 5, 6

Lab 5 - Lab Report (35%)

Date: Mon, Oct 21 - Thu, Oct 31

Learning Outcome(s) Addressed: 1, 2, 3, 5, 6, 7

Lab 6 - Figure (5%)

Date: Mon, Nov 4 - Fri, Nov 15

Learning Outcome(s) Addressed: 2, 6

Lab 7 - Lab Report (45%)

Date: Mon, Nov 18 - Fri, Nov 29

Learning Outcome(s) Addressed: 1, 2, 3, 4, 5, 6, 7

6.2 Weight of Assessments

The relative value of the lab assignments increases through the semester as the complexity of the associated exercises increase. Lab Reports for labs 5 & 7 will be complete, formal lab reports describing the experiments completed. These reports will be expected to contain all components of a published scientific study.

7 Course Statements

7.1 Use of Animals

This course uses animal tissues for measurement of physiological responses labs 4,5 and 7. The University is committed to principles of conducting research and teaching in accord with the highest ethical standards. Given that the use of animals, in research and teaching, is a critical aspect of the work of the University of Guelph, the Department of Integrative Biology is committed to minimizing the use, pain, and suffering of animals used for teaching and to ensuring that animals which are used will receive care and treatment that meets or exceeds the standards outlined by provincial guidelines and statutes, and by the Guidelines of the Canadian Council on Animal Care. For

more information, http://www.uoguelph.ca/research/assets/acs/docs/university_animal_care_policy_and_pr

7.2 Grading

Late Policy: Lab assignments and reports are due in the D2L Dropbox at the specified time (see the specific Dropbox for the time for your lab section). There are no extensions. The late penalty is 10% of assignment value per day or part thereof, for a maximum of 3 days. No assignment will be accepted that is more than 3 days late.

Lab Reports and assignments: Grades will be assigned according to the standards outlined in the U of G Undergraduate Calendar.

- **80 - 100 (A) Excellent.** An outstanding performance in which the student demonstrates a superior grasp of the subject matter, and an ability to go beyond the given material in a critical and constructive manner. The student demonstrates a high degree of creative and/or logical thinking, a superior ability to organize, to analyze, and to integrate ideas, and a thorough familiarity with the appropriate literature and techniques.
- **70 - 79 (B) Good.** A more than adequate performance in which the student demonstrates a thorough grasp of the subject matter, and an ability to organize and examine the material in a critical and constructive manner. The student demonstrates a good understanding of the relevant issues and a familiarity with

the appropriate literature and techniques.

- **60 - 69 (C) Acceptable.** An adequate performance in which the student demonstrates a generally adequate grasp of the subject matter and a moderate ability to examine the material in a critical and constructive manner. The student displays an adequate understanding of the relevant issues, and a general familiarity with the appropriate literature and techniques.
- **50 - 59 (D) Minimally Acceptable.** A barely adequate performance in which the student demonstrates a familiarity with the subject matter, but whose attempts to examine the material in a critical and constructive manner are only partially successful. The student displays some understanding of the relevant issues, and some familiarity with the appropriate literature and techniques.
- **0 - 49 (F) Fail.** An inadequate performance

8 Department of Integrative Biology Statements

8.1 Academic Advisors

If you are concerned about any aspect of your academic program:

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

8.2 Academic Support

If you are struggling to succeed academically:

- **Learning Commons:** There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. <http://www.learningcommons.uoguelph.ca/>
- **Science Commons:** Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/math-stats-help>

8.3 Wellness

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance. <https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. <http://www.uoguelph.ca/~ksomers/>

9 University Statements

9.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

9.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

9.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for course registration are available in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

9.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

9.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

More information can be found on the SAS website
<https://www.uoguelph.ca/sas>

9.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct
<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct
<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

9.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

9.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars
<https://www.uoguelph.ca/academics/calendars>
