



ZOO*3610 Lab Studies in Animal Physiology I

Fall 2022

Section(s): 01

Department of Integrative Biology

Credit Weight: 0.25

Version 1.00 - September 07, 2022

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

1.2 Course Description

This course will provide exposure to laboratory techniques and practical demonstrations of lab data collection in comparative animal physiology. Students in this class will be exposed to demonstrations illustrating lab exercises 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, as much as practically possible, the material in Comparative Animal Physiology I (ZOO*3600).

1.3 Timetable

Labs will be held in SSC 3314 and are scheduled every week.

Section 101: Tuesday (2:30-5:20PM)

Section 102: Wednesday (2:30-5:20PM)

Section 103: Thursday (2:30-5:20PM)

Please note that the above plan is based on current public health directives, and this is subject to change according to public health conditions at the time that the course is offered.

1.4 Final Exam

This course does not employ a final exam, but rather consists of a series of reports based on data sets that will be collected by the students and/or supplied by the instructor.

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Colin DeMill
Email:	cdemill@uoguelph.ca
Telephone:	+1-519-824-4120 x56557
Office:	SSC 3313
Office Hours:	By appointment.

2.2 Teaching Assistants

Teaching Assistant (GTA):	Shayla Larson
Email:	slarson@uoguelph.ca
Office Hours:	By appointment
Teaching Assistant (GTA):	Alannah Grant
Email:	agrants13@uoguelph.ca
Office Hours:	By appointment

3 Learning Resources

3.1 Required Resources

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.

Spreadsheet and Word Processing Software (Microsoft Office) (Software)

Students are required to have access to spreadsheet and word processing software that are compatible with Microsoft Word and Excel. It is highly recommended that students have access to the Microsoft Office software suite in order to easily complete course assignments.

- These programs are available to download for free from the Computing and Communication Services (CCS) website.
- If students use other similar software, please ensure that you save your files in the required file format according to the assignment instructions.

3.2 Recommended Resources

Lab Coat (Other)

A lab coat is recommended but not required.

3.3 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.

3.4 Dissection Kit

A dissection kit may be useful but is not required for this course.

4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. Formulate testable hypotheses and then carry out simple experiments to test hypotheses
2. Measure diffusion, muscle activity, heart activity and glucose metabolism rates in animals
3. Collect and organize high quality data

4. Generate properly formatted graphs and tables
 5. Analyze and interpret experimental results
 6. Write a coherent and concise laboratory report
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5 Teaching and Learning Activities

5.1 Lab

Week 1

Topics: LAB 1: How to accurately pipette, Calibrate a spectrophotometer, Determine, Lambda max and how to generate and plot a standard curve.

Week 2

Topics: LAB 2: Quantifying passive transport through a membrane.

Week 3

Topics: Writing lab reports – instruction from The Learning Commons specialists.

Week 4

Topics: LAB 3: Nerve – Muscle physiology.

Week 7

Topics: LAB 4: Autonomic control mechanisms in heart.

Week 9

Topics: LAB 5: Measuring glucose in biological samples.

Week 10

Topics: LAB 6: Examination of the hormonal control of liver glucose metabolism in vitro.

Week 11

Topics: Open lab help session

6 Assessments

6.1 Assessment Details

Prelab Quizzes (6%)

Due: See CourseLink

6 prelab quizzes worth 1% each to be completed before each lab session.

Quizzes are to be completed individually.

Assignment Lab 1 (4%)

Date: Week 2

Assignment for lab 1 to be completed individually and submitted to dropbox before Lab 2.

Assignment Lab 2 (8%)

Date: Week 4

Assignment Lab 2 to be completed individually and submitted to dropbox before Lab 3.

Lab Report Lab 3 (24%)

Date: Week 7

Full lab report for Lab 3 to be completed individually and submitted to dropbox before Lab 4.

Lab Report Lab 4 (26%)

Date: Week 9

Full lab report for Lab 4 to be completed individually and submitted to dropbox before Lab 5.

Assignment Lab 5 (4%)

Date: Week 10

Assignment Lab 5 to be completed individually and submitted to dropbox before Lab 6.

Lab Report Lab 6 (28%)

Date: Week 12

Lab Report for Lab 6 to be completed individually and submitted to dropbox within 2 weeks of the lab.

7 Course Statements

7.1 Draft Course Outline Disclaimer

This is a draft course outline and is subject to change up to the first day of classes, in

keeping with the policy described in the University of Guelph Academic Calendar.

7.2 Use of Animals

This course uses tissues from selected vertebrates for work in lab. 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_procedures.pdf

7.3 Time Zones

PLEASE NOTE ALL TIMES REPORTED IN THIS COURSE OUTLINE AND ON COURSELINK ARE EASTERN TIME (GUELPH, ONTARIO, CANADA)

If you are joining us from another time zone, please ensure that you take into account the time change when joining labs and when submitting assignments.

7.4 Grading

Grades will be assigned according to the standards outlined in the U of G Undergraduate Calendar (p40 - 41).

7.5 Late Policy

Lab quizzes and reports are due on the date specified on CourseLink. Quizzes must be completed on time as extensions cannot be granted. The late penalty for assignments and lab reports is 3% of assignment value per day.

Requests for extensions for reasons of academic consideration are always considered (see University calendar).

7.6 Regrading Policy

All requests for re-grading will be considered. Please ensure that requests are made by email to the course instructor within one week of the return of the assignment.

In order for a re-grading request to be considered, please provide a detailed justification for why the grade should be changed based on the assessment criteria found in the grading rubric.

Be aware that the entire document will be re-graded, which could result in an increase, decrease, or no change to your mark.

7.7 Incomplete Coursework

A grade of zero will be applied for any quizzes, assignments or lab reports not submitted. Lab Report for Lab 6, the final lab report, must be submitted or an incomplete mark (INC) will be awarded.

7.8 Plagiarism Detection Software

Students should be aware that faculty have the right to use software to aid in the detection of plagiarism or copying and to examine students orally on submitted work. For students found guilty of academic misconduct, serious penalties, up to and including suspension or expulsion from the University can be imposed.

Electronically submitted student assignments are automatically compared to other electronic documents (including online and student papers) by Turnitin™ for degree of similarity.

7.9 Online Behaviour (Netiquette)

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

Posting inflammatory messages about your instructor or fellow students

- Using obscene or offensive language online
- Copying or presenting someone else's work as your own
- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz or completing a quiz for/with another student
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student or instructor online
- Discriminating against fellow students, instructors and/or TAs
- Using the course website to promote profit-driven products or services
- Attempting to compromise the security or functionality of the learning management system
- Sharing your user name and password
- Recording lectures without the permission of the instructor

7.10 Rights and Responsibilities When Learning Online

For online courses, the course website is considered the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply, plus other policies and considerations that come into play specifically because these courses are online.

For more information on your rights and responsibilities when learning in the online

environment, visit Rights and Responsibilities.
<http://opened.uoguelph.ca/student-resources/rights-and-responsibilities>

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.selfregulationskills.ca/>

8.4 Personal information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes.

For more information regarding the Collection, Use and Disclosure of Personal Information policies please see the Undergraduate Calendar.
(<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

8.5 Course Offering Information Disclaimer

Please note that course delivery format (face-to-face vs online) is subject to change up to the first-class day depending on requirements placed on the University and its employees by public health bodies, and local, provincial and federal governments. Any changes to course format prior to the first class will be posted on WebAdvisor/Student Planning as they become available.

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>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

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

9.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and

alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic 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>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.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 make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website

<https://www.ridgetownc.com/services/accessibilityservices.cfm>

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>

9.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

9.10 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g.. final exam or major

assignment).

9.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.
