



ZOO*4170 Experimental Comparative Animal Physiology

Winter 2023

Section(s): C01

Department of Integrative Biology

Credit Weight: 0.50

Version 1.00 - January 06, 2023

1 Course Details

1.1 Calendar Description

In this course an experimental approach to the study of physiological mechanisms and adaptive responses to changes in the environment will be stressed. The focus of the course will be on laboratory exercises.

Pre-Requisites: 1 of BIOM*3200, HK*2810, ZOO*3210, ZOO*3600

1.2 Course Description

In this course an experimental approach to the study of physiological mechanisms and adaptive responses to changes in the environment will be the primary topics. The focus of the course will be on physiological data, quantitative skills and scientific communication skills. The lecture portion will focus on human biological rhythms, acquisition and analysis of rhythmic data, and the development and refinement of communication skills in the sciences. The laboratory portion will focus on experimental animal physiology, data analysis, and scientific communication skills.

1.3 Timetable

Lectures: Tue/Thu 10:00 – 11:20 AM (location TBD)

Laboratories: SSC3305. (Attendance is mandatory.)

- Section 101: Wednesdays 2:30-5:20 PM

- Section 102: Thursdays 2:30-5:20 PM

1.4 Final Exam

There is no final exam in this course.

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Dr. Giulia Rossi
Email:	grossi@uoguelph.ca
Office Hours:	By appointment
Lab Co-ordinator:	Dr. 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):	Brett Culbert
Email:	culbertb@uoguelph.ca

3 Learning Resources

There is no textbook. Students are required to read articles from the primary literature.

Descriptions of lab exercises will be available as PDF documents through Courselink.

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). Consequently, you are responsible for all information posted on the Courselink page for ZOO*4170. Please check it regularly.

4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. Develop a research hypothesis and test a prediction(s) based on the hypothesis.
 2. Analyze physiological data with statistics using a problem-based approach.
 3. Practice and demonstrate advanced oral presentation skills by developing an individual presentation.
 4. Practice and demonstrate advanced written communication skills in reports of your findings.
 5. Produce graphical representations of data in multiple formats and select appropriate formats for effective data presentation.
 6. Practice and demonstrate use of bioinformatics in support of the design of molecular physiology experiments.
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5 Teaching and Learning Activities

5.1 Lectures

This course differs from most others in that the lecture material largely supplements the laboratory experience. The focus of lectures will be in developing written and oral presentation skills using the information covered in labs as inspiration. The course is “learner-centered”. Students will choose a contemporary research article in comparative animal physiology about which the writing assignments of the course will be focused. Students will have the option to write either a popular science article about their chosen article or a mock research proposal (OGS/NSERC-style) pitching a follow-up study. At the end of the semester, all students will develop a PowerPoint to present to the class about their chosen article.

5.2 Laboratories

Seven experiments will be conducted investigating various physiological mechanisms. Labs are completed by groups of up to three students. **Participation in laboratory sessions is mandatory.** Attendance and participation in each lab is required to get credit for the lab report. No alternate assignments will be accepted for any of the lab exercises. Photos and videos in the lab are prohibited unless directly related to lab activities. This course involves participation in laboratory exercises that use animals.

Labs meet weekly on Wednesdays and Thursdays beginning Jan 11/12. The first two lab sessions introduce equipment, techniques and statistics followed by a seven week rotation of experiments. Note, there are no labs on Feb 22/23 and March 15/16. The final lab period is March 22/23. March 29/30 will be reserved for makeup labs due to illness or weather.

6 Assessments

6.1 Marking Schemes & Distributions

Writing Assignments: 25%

Individual Oral Presentation: 15%

Participation in Discussion: 10%

Lab Reports (group): 42%

Lab Statistics (individual): 8%

6.2 Assessment Details

Writing Assignment (25%)

Option A - Popular Science Article

- You will choose a recent research article and pitch it to an online science magazine in the hopes of developing a full written story (**5%**). The pitch will be due on January 27, 2023.
- Using the feedback from the pitch assignment, you will write a longer (~1 page) article explaining the research article in lay terms for the general public (**20%**). A first draft will be due on February 17, 2023 and the final draft will be due on March 10, 2023.

Option B – Mock Research Proposal

- You will choose a recent research article and pitch it to your “MSc supervisor” as the inspiration for a follow-up study (**5%**). The pitch will be due on January 27, 2023.
- Using the feedback from the pitch assignment, you will write a research proposal (~1 page) outlining a novel project for your follow-up study (**20%**). A first draft will be due on February 17, 2023 and the final draft will be due on March 10, 2023.

Individual Oral Presentation (15%)

- Using the same research article used for the written assignments, you will develop a 10 minute PowerPoint presentation. The aim is to briefly state the hypotheses/objectives and key results, before presenting an important question arising from this study and future directions for a follow-up study **(15% - March 14 - April 6)**

Participation in Discussion (10%)

- You are required to participate in the in-class group discussions on pre-lab materials (January 10-19) **(3%)***
- You are required to ask questions of your classmates during the individual oral presentations **(7%)***

**If you do not attend class during these critical times you will receive 0% for participation (unless prior consideration is granted).*

Lab assessments (50%)

Group lab reports consisting of analyzed data and an abbreviated discussion will be submitted for each of seven experiments. Each report will be worth 6% of your final mark. Two individual statistics assignments will be completed each worth 4% of your final mark.

7 Course Statements

7.1 Late Policy

Assignments and lab reports submitted after the deadline will accrue a penalty of 3% per day.

7.2 Absence & Illness

- When an assignment is missed, you must notify the instructor in writing, with your name, ID number, and e-mail contact as soon as possible. If requesting academic consideration on medical or compassionate grounds, be prepared to provide

supporting documentation.

- See the undergraduate calendar for information on regulations and procedures for Academic

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

7.3 Lab Assignments

Students are required to write all assignments in their own words. Ensure that you paraphrase correctly from the published literature. If you have any questions or concerns about paraphrasing, please ask course instructors for help. Students are encouraged to discuss course materials together, but ensure that you do not collaborate on written assignments in a manner that could be perceived as copying. As well, do not copy from lab reports submitted in this course in earlier years, as this is a form of academic misconduct.

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

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