



COURSE OUTLINE

1. **Course:** ZOOL 461, Animal Physiology I - Fall 2023

Coordinator(s)

Name	Email	Phone	Office	Hours
Dr. Hamid Habibi	habibi@ucalgary.ca	403 220-5270	BI 276	By Appointment

Section(s)

Lecture 01 : MWF 09:00 - 09:50 in SB 103

Instructor	Email	Phone	Office	Hours
Dr. Hamid Habibi	habibi@ucalgary.ca	403 220-5270	BI 276	By Appointment
Dr. Kelsey Lucas	kelsey.lucas@ucalgary.ca	403 220-7202	BI 286B	M, 11 am- 12 pm and F 1 pm - 2pm, in Drummond Hall (BI 192), past the BIO office and computer lab
Dr. Corey Flynn	cflynn@ucalgary.ca	403 220-5055	BI 448	By Appointment Only

To account for any necessary transition to remote learning for the current semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

Online Delivery Details:

Some aspects of this course are being offered in real-time via scheduled meeting times. For those aspects you are required to be online at the same time.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor's permission.

Lecture Material will be delivered synchronously and asynchronously, depending on who is teaching that component of the course, as follows:

Dr. Habibi (Endocrinology) will synchronously deliver most of his lectures in person. A small number of lectures will be recorded and posted to the D2L site for two weeks for you to access and review at your convenience (asynchronously). A tutorial will be arranged online to answer questions regarding the materials delivered asynchronously. All lecture notes will be posted to the D2L site for you to access.

Dr. Lucas (Muscle Physiology) will synchronously deliver her lectures in person. All lecture notes, including live slide annotations, will be posted on D2L after the class session.

Dr. Flynn (Neurophysiology/Sensory Physiology) will deliver his lectures in person and record the lectures. The recorded lectures will be posted to D2L.

Course Site:

D2L: ZOOL 461 L01-(Fall 2019)-Animal Physiology I

Note: Students must use their U of C account for all course correspondence.

Equity Diversity & Inclusion:

The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

The Biological Sciences Equity Committee acknowledges there are persistent barriers that prevent such accessibility and hinder our progress towards EDI. Our representatives (faculty, staff, postdocs, graduate and undergraduate students) are committed to addressing any concerns and work towards proactive solutions that enact necessary change within the department. To submit anonymous questions, comments or concerns regarding EDI related issues, please reach out to our Chair, Arshad Ayyaz (_arshad.ayyaz@ucalgary.ca), or a committee representative of your choice at <https://science.ucalgary.ca/biological-sciences/about/equity-diversity-and-inclusion>

2. Requisites:

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Biology 331.

Antirequisite(s):

Credit for Zoology 461 and any of Biology 305, Medical Science 404, 604, Zoology 269, Kinesiology 259, 260 or 323 will not be allowed.

3. Grading:

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
Laboratory	24%	Ongoing		
Midterm exam ¹	33%	Oct 23 2023 at 07:00 pm (90 Minutes)	in-person	A large classroom with capacity over 400
Registrar Scheduled Final Exam	43%	Will be available when the final exam schedule is released by the Registrar	in person	Will be available when the final exam schedule is released by the Registrar

¹ There will not be a deferred mid-term exam. The portion of the mid-term grade for the students who miss the exam for valid reasons will be transferred to the final exam.

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	71 %	67 %	63%	59%	55 %	50 %

This course will have a Registrar Scheduled Final exam that will be delivered in-person and on campus. [The Final Examination Schedule](#) will be published by the Registrar's Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 3 hours.

NOTE: Students who do not achieve a passing grade (D minimum) on the weighted combination of the Midterm and Final exams will receive an F in the course, regardless of their lab grade.

The University of Calgary offers a [flexible grade option](#), Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: <https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade>

4. Missed Components Of Term Work:

In the event that a student legitimately fails to submit any online or in-person assessment on time (e.g. due to illness, domestic affliction, etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date, or possible exemption and reweighing of components. Absences not reported within 48 hours will not be accommodated. Students may be asked to provide supporting documentation ([Section M.1](#)) for an excused absence, See [FAQ](#).

If an excused absence is approved, options for how the missed assessment is dealt with is at the discretion of the coordinator or course instructor. Some options such as an exemption and pro-rating among the components of

the course may not be a viable option based on the design of this course.

If any aspect of the course (Midterm Exam or Lab Report) are missed, you must contact the instructional team as soon as possible.

Missed Midterm - contact the course coordinator Dr. Habibi (habibi@ucalgary.ca)

Missed Lab or Lab Report - contact the lab coordinator Dr. Flynn (cflynn@ucalgary.ca)

5. Scheduled Out-of-Class Activities:

The following out of class activities are scheduled for this course.

Activity	Location	Date and Time	Duration
MT Exam	TBA	Monday, October 23, 2023 at 7:00 pm	1.5 Hours

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

6. Course Materials:

Recommended Textbook(s):

GUYTON & Hall, *GUYTON & Hall, Textbook of Medical Physiology*, 14th Ed. 2020: W.B. Saunders Co. and Sinauer.
Richard W. Hill, Margaret Anderson, Gordon A. Wyse, *Animal Physiology*, 4th Ed.: Sinauer Associates.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

7. Examination Policy:

This course will have a scheduled midterm exam and a final exam. The final exam will be cumulative and scheduled by the Registrar's Office. All exams will be held in person, synchronously.

Each piece of work (laboratory report, midterm test or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade. Students must achieve a passing grade (D minimum) on the course portion of the midterm and final exam to qualify for an overall passing grade.

No aids are allowed on tests or examinations unless explicitly noted to the class.

Students should also read the Calendar, [Section G](#), on Examinations.

8. Approved Mandatory And Optional Course Supplemental Fees:

There are no mandatory or optional course supplemental fees for this course.

9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

10. Human & Living Organism Studies Statements:

Students will be expected to participate as subjects or participants in projects.

See also [Section E.5](#) of the University Calendar.

STUDIES IN THE BIOLOGICAL SCIENCES INVOLVE THE USE OF LIVING AND DEAD ORGANISMS. Students taking laboratory and field-based courses in these disciplines can expect involvement with and experimentation on such materials. Students perform dissections on dead or preserved organisms in some courses. In particular courses, students experiment on living organisms, their tissues, cells, or molecules. Sometimes field work requires students to collect a variety of living materials by many methods, including humane trapping.

All work on humans and other animals conforms to the Helsinki Declaration and to the regulations of the Canadian Council on Animal Care. The Department strives for the highest ethical standards consistent with stewardship of the environment for organisms whose use is not governed by statutory authority. Individuals contemplating taking courses or majoring in one of the fields of study offered by the Department of Biological Sciences should ensure that they have fully considered these issues before enrolling. Students are advised to discuss any concern they might have with the Undergraduate Program Director of the Department.

Students are expected to be familiar with [Section SC.4.1](#) of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work [form](#) to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Services:** For more information, see their [website](#) or call [403-210-9355](#).
- c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (syssa@ucalgary.ca) or phone at [403-220-2208](#). The complete University of Calgary policy on sexual violence can be viewed [here](#).
- d. **Student Ombuds Office:** A safe place for all students of the University of Calgary to discuss student related issues, interpersonal conflict, academic and non-academic concerns, and many other problems.
- e. **Student Union Information:** [SU contact](#), Email your SU Science Reps: science1@su.ucalgary.ca, science2@su.ucalgary.ca, science3@su.ucalgary.ca,
- f. **Academic Accommodation Policy:**

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>

Students needing an accommodation because of a disability or medical condition should communicate this

need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>.

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Academic Accommodation Form](#) and sending it to Lisa Gieg by email imgieg@ucalgary.ca preferably 10 business days before the due date of an assessment or scheduled absence.

- g. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)
[Student Academic Misconduct Policy](#) and [Procedure](#)
[Faculty of Science Academic Misconduct Process](#)
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

- h. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.
- i. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- j. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

ZOO 461 LECTURE SCHEDULE - 2023

Endocrinology: Hamid Habibi Sept 6 - October 2 (12 lectures)

Hormone-target interactions and specificity

Mechanisms of hormone action (delivered asynchronously online)

Hypothalamic and pituitary anatomy and hormones

Hormones of Neurohypophysis and Function

Integrated control of growth, development, reproduction and metabolism

Neurophysiology: C. Flynn, October 4 - 23 (8 lectures)

Cell Types

Passive Electrical Properties

Oct 9 Thanksgiving Day, no lecture.

Ion Channels

The Action Potential

Oct 23 MIDTERM EXAM 19:00-20:30, location TBA, lectures 1-18

Muscle Physiology: Kelsey Lucas, October 25 - November 10 (8 lectures)

Anatomy and sliding filament theory

Excitation and contraction

Mechanics and energetics

Control of muscle

Smooth muscle

Sensory Physiology: C. Flynn, November 20 - December 6 (8 lectures)

Sensation and Perception

Skin Receptors and Mechanoreception

The Auditory System

The Auditory System/Vestibular System

The Visual System

Course Outcomes:

- Be able to explain how the anatomy and physiology of neurons contribute to the creation and maintenance of membrane potential and mechanisms of neuronal signalling including the synapse and action potential.
- Be able to explain the physiological basis of sensation and perception, including the design and function of important sensory systems including the skin, auditory, visual, vestibular and chemical sensation.
- Be able to explain how muscles are built from molecular to organ level, how they are regulated, how their anatomy and physiology give rise to emergent properties of muscle contraction, and the basis of neural control of muscles.
- Be able to explain how endocrine systems function, including hormone/target interactions, mechanisms of hormone function, hypothalamic-pituitary interactions, and regulation of growth, development, reproduction and metabolism.
- Be able to apply the physiological systems and principles under consideration to explain how they promote maintenance of homeostasis and normal body function in animals.
- Be expected to apply their knowledge about these systems to perform lab/inquiry-based experiments, and to collect and present their results in written scientific reports that demonstrate the ability to critically assess and explain their data.
- Be able to explain how the anatomy and physiology of neurons contribute to the creation and maintenance of membrane potential and mechanisms of neuronal signaling including the synapse and action potential
- Be able to explain the physiological basis of sensation and perception, including the design and function of important sensory systems including the skin, auditory, visual, vestibular and chemical sensation
- Be able to explain how muscles are built from molecular to organ level, how they are regulated,

how their anatomy and physiology give rise to emergent properties of muscle contraction, and the basis of neural control of muscles

- Be able to explain how endocrine systems function, including hormone/target interactions, mechanisms of hormone function, hypothalamic-pituitary interactions, and regulation of growth, development, reproduction and metabolism
- Be able to apply the physiological systems and principles under consideration to explain how they promote maintenance of homeostasis and normal body function in animals
- Be expected to apply their knowledge about these systems to perform lab/inquiry-based experiments, and to collect and present their results in written scientific reports that demonstrate the ability to critically assess and explain their data

Electronically Approved - Sep 03 2023 17:04

Department Approval

Electronically Approved - Sep 05 2023 20:37

Associate Dean's Approval