



REVISED COURSE OUTLINE FOR REMOTE LEARNING

To account for the necessary transition to remote learning from March 13 onward, adjustments have been made to assessment deadlines and requirements so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff). If you are unable to meet the deadlines or requirements specified, please connect with your course instructor to work out alternative dates/assessments.

1. **Course:** ZOOL 463, Animal Physiology II - Winter 2020

Lecture 01: MWF 10:00 - 10:50 - Remote Learning (check with your instructor or coordinator for details)

Instructor	Email	Phone	Office	Hours
Professor Hamid Habibi	habibi@ucalgary.ca	403 220-5270	BI 276	By Appointment
Dr Corey Flynn	cflynn@ucalgary.ca	403 220-5055	BI 448	By Appointment Only
Dr Douglas Syme	syme@ucalgary.ca	403 220-5281	BI 262	By Appointment

Course Site:

D2L: ZOOL 463 L01-(Winter 2020)-Animal Physiology II

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

2. **Requisites:**

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

Prerequisite(s):

Zoology 461.

Antirequisite(s):

Credit for Zoology 463 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:

Component(s)	Weighting %	Date
Midterm Lecture Exam	34 %	Tuesday March 3, 2020 ST 140
Laboratory	22 %	
Final Exam (scheduled by Registrar)	44%	Online (see information below)

Lab Update for Remote Learning:

Lab 05 - Renal function - Data available March 26th.

Lab 05 Report DUE - Thursday, April 2nd, at 12:00pm.

Lab 06 - Acid-Base Balance Online Tutorial available April 6th - April 13th

Lab 06 - Acid Base D2L Quiz Available April 13 - April 15th.

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 %

4. Missed Components Of Term Work:

The University has suspended requirements for students to provide evidence for reasons for absences so please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations. Please let your instructor know immediately if you are ill and cannot meet the deadlines specified.

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	ST 140	Tuesday, March 3, 2020 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:

There are no additional course materials required for this course.

7. Examination Policy:

No aids are allowed on tests or examinations.

Additional update for the Final exam

1. The final exam will be administered online including short answer questions and/or multiple-choice questions. Students will have a 24-hour window in which to write the final exam, starting at 6:30 pm MDT on Weds April 22. The completed exam must be submitted on D2L by 6:30 pm on Thurs April 23. More specific details will be provided on D2L and sent by e-mail to the class list.
2. The final exam will not be cumulative. The exam is 4 hours and deals with topics after the mid-term exam (i.e., cardiovascular physiology, renal physiology and gastrointestinal physiology).
3. You will need your computer and internet access to answer the questions online interactively.

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 not participate as subjects or researchers in human studies.

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 Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. 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 (svsa@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208).
- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head, Undergraduate of the Department of Biological Sciences, Heather Addy by email addy@ucalgary.ca or phone 403 220-6979. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-](tel:403-220-2208)

[220-5333](tel:220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). 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.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: ombuds@ucalgary.ca.
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- k. **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.
- l. **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.

ZOOLOGY 463 PHYSIOLOGY II

LECTURE OUTLINE - WINTER 2020

Body Fluids and Hemostasis, 3 Lectures, Dr. H.R. Habibi

Body Defense System, 3 Lectures, Dr. H.R. Habibi

Thermoregulation, 6 Lectures, Dr. H.R. Habibi

Respiration, 6 Lectures, Dr. D. Syme

Circulation, 6 Lectures, Dr. D. Syme

Renal, 6 Lectures, Dr. C. Flynn

Gastrointestinal Physiology, 6 Lectures, Dr. M. Vijayan

LECTURE SCHEDULE - WINTER 2020

Body Fluids & Hemostasis (H Habibi, 3 lectures), Jan 13 - 17

Body fluids and compartments

Blood cells and Hemostasis

Blood clotting

Body Defense System (H Habibi, 3 lectures), Jan 20 - 24

Immune system

Immune system

Immune system

Thermoregulation (H Habibi, 6 lectures), Jan 27 - Feb 7

Body temperature and metabolism

Heat exchange mechanisms

Thermoregulation and thermo receptors

Hypothermia, hyperthermia and pyrexia

Heterothermy and Hibernation

Thermoregulation in Poikilotherms

Respiration (D. Syme, 6 lectures), Feb 10 - 28

Anatomy and lung/gill mechanics

Diffusion and gas exchange

O₂ and CO₂ transport

Feb 16 - 22 WINTER BREAK, NO LECTURES or LABS

Acid/base balance

Regulation of breathing

Respiratory stress

Mar 3 , 2020 Mid-Term Exam (lectures 1-19) (7:00- 9:30 pm)

Circulation (D. Syme, 6 lectures) Mar 2 - 13

Overview of cardiovascular function

Comparative anatomy/function of the heart I

Comparative anatomy/function of the heart II

Cardiac muscle -structure and electrical properties

The heart - electrical and mechanical properties

Blood flow/pressure regulation and comparative cardiovascular patho/physiology

Renal Physiology (C. Flynn, 6 lectures), Mar 16- 27

Principles of osmotic and ionic regulation

Evolution of the mechanisms of salt and water balance

Function of the mammalian nephron-I

Function of the mammalian nephron-II

Function of the mammalian nephron-III

Physiological compensation to environmental changes-I

Physiological compensation to environmental changes-II

Gastrointestinal Physiology (M. Vijayan, 6 Lectures), Mar 30 - April 15

1. Anatomy of the GI system
2. Motility and secretion
3. Digestion and absorption
4. Integration of GI function

- 5. Animal adaptations – I. GI structure
- 6. Animal adaptations – II. GI Function

LAB SCHEDULE - WINTER 2020

Jan. 21 & 23 Lab 01 - Hematology

Feb 4 & 6 Lab 02 - Immunology

Feb. 17 - 21 NO LABS (Winter Break)

Feb. 25 & 27 Lab 03 - Mechanics and Control of Ventilation

Mar. 10 & 12 Lab 04 - Blood Pressure, Electrocardiography and Circulation

Mar. 24 & 26 Lab 05 - Renal function

Lab 05 Report DUE - Thursday, April 2nd, at 12:00pm.

Apr. 7 & 9 Lab 06 - Acid-Base Balance

Lab 06 - Acid Base D2L Quiz Available April 13 - April 15th.

Course Outcomes:

- **General concept of body Fluids and Hemostasis. Emphasis will be placed on body fluid composition and compartments, blood cells and Hemostasis and mechanisms of preventing blood loss by initiation blood clotting**
- **Body defense system and basis for innate and adaptive immune response. Students will understand the basis for hypersensitivity, cell mediated and humoral immunity. They will also have an understanding of the mechanism of histocompatibility.**
- **Thermoregulation and mechanisms metabolism and temperature control in endotherm and ectotherms. Students will have an understanding of heat exchange mechanisms and thermoreceptors, and physiological mechanisms of dealing with extreme heat and cold.**
- **Demonstrate understanding of the osmoregulatory challenges facing various organisms and compare/contrast the different ways these challenges are overcome. Demonstrate deep understanding of the anatomy and function of the mammalian nephron.**
- **Explain how the design of respiratory systems facilitates exchange of gasses between the animal and environment, how these structures are regulated, how differences between water and air impact these designs and their regulation, and how and why gasses are transported in blood in the forms they are.**
- **Explain how the hearts of animals are designed to circulate fluids through the body, how the design of the heart and central circulation reflect differences in the medium in which the animal lives and metabolic rate, how the heart functions as an effective pump, and how the cardiovascular system responds to metabolic demand and controls blood flow.**
- **Students are expected to have a basic understanding of the functioning of the gastrointestinal tract. They should be familiar with the regional specificity of digestion and absorption in the GI tract. The focus will be on the cellular mechanisms involved in the digestion and absorption of nutrients.**
- **The students will also have a general understanding of how the GI function is regulated by the nervous and endocrine system.**
- **Students will be expected to apply their knowledge about these systems to perform lab/inquiry-based experiments, and to collect, assess, and present their results in written scientific reports that demonstrate the ability to critically assess and explain their data.**

Electronically Approved - Mar 23 2020 16:12

Department Approval

Electronically Approved - Mar 23 2020 16:23

Associate Dean's Approval for alternate final examination arrangements or remote learning and out of regular class-time activity