UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF BIOLOGICAL SCIENCES
COURSE OUTLINE

1. Course: ZOOLOGY 463 – ANIMAL PHYSIOLOGY II

Lecture Section:	L01	MWF	10:00-10:50	ST 135	WINTER 2018
Lab Sections:	B01, 02, 03	T	9:30/14:00/17:30	BI 117	
	B04, 05	M	14:00/17:30	BI 117	

Course Coordinator: Dr. Habibi

Instructors:	Dr. H.R. Habibi	BI 276	220-5270	habibi@ucalgary.ca
	Dr. D.A. Syme	BI 262	220-5281	syme@ucalgary.ca
	Dr. C. Flynn	BI 238B	220-5055	cflynn@ucalgary.ca
	Dr. M. Vijayan	BI 488	220-3094	mmvijaya@ucalgary.ca

D2L course name: **ZOOL 463 L01 - (Winter 2018) - Animal Physiology II**
Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

2. PREREQUISITE(S): Zoology 461

ANTIREQUISITE(S): Credit for both Zoology 463 and any of Biology 305, Medical Science 404, 604, Zoology 269, Kinesiology 259, 260 or 323 will not be allowed.

See section 3.5.C in the Faculty of Science section of the online Calendar (http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

3. Grading: The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Midterm Lecture Exam	30 %	Feb. 28, 2018	TBA
Laboratory	30 %		
Final Exam	**40 %**		

(There will be a final exam scheduled by the Registrar's office.)

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 portion of the course comprised of the midterm and final exam in order to qualify for a passing grade overall.

Grade scale:

Letter Grade	**A+**	**A**	**A-**	**B+**	**B**	**B-**	**C+**	**C**	**C-**	**D+**	**D**
Min. Percent Required	**92**	**87**	**83**	**80**	**76**	**72**	**68**	**64**	**60**	**56**	**50**

4. Missed Components of Term Work: The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in Section 3.6. It is the student's responsibility to familiarize himself/herself with these regulations. See also Section E.3 of the University Calendar

5. Scheduled out-of-class activities: Dates and times of approved class activities held outside of class hours.

MIDTERM EXAM (Lectures 1-18 February 28, 2018 8:00-9:30pm TBA

PLEASE NOTE THAT THERE WILL NOT BE A DEFERRED MID-TERM EXAMINATION.

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **Course Materials:** TEXT: Recommended: GUYTON & Hall, Textbook of Medical Physiology, W.B. Saunders Co., Toronto. 13th Ed. 2015, and Animal Physiology. Hill, Wyse, Anderson. Sinauer Associates, Inc., Mass., 4rd edition.

7. **Examination Policy**: Students should also read the Calendar, Section G, on Examinations.

8. **Writing across the curriculum statement:** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See also Section E.2 of the University Calendar.

9. **Human studies statement:** See Section E.5 of the University Calendar.

ETHICS IN THE BIOLOGICAL SCIENCES

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.

10. OTHER IMPORTANT INFORMATION FOR STUDENTS:

(a) **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.

(b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points.

(c) **Student Accommodations:** 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 http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.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, preferably in writing, to the Associate Head of Biological Sciences, Dr. H. Addy by email addy@ucalgary.ca or phone 403 220-3140.

(d) **Safewalk:** Campus Security will escort individuals day or night (http://www.ucalgary.ca/security/safewalk/). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, 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 also http://www.ucalgary.ca/secretariat/privacy.

(f) **Student Union Information:** VP Academic Phone: 403 220-3911 Email: suvpaca@ucalgary.ca
SU Faculty Rep. Phone: 403 220-3913 Email: science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca;
Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; http://ucalgary.ca/provost/students/ombuds

(g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

(h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval ORIGINAL SIGNED Date

Associate Dean's Approval for
out of regular class-time activity: ORIGINAL SIGNED Date:

ZOOLOGY 463 PHYSIOLOGY II
LECTURE OUTLINE - WINTER 2018

General topic	No. of Lectures	Instructructor .
Body Fluids and Hemostasis	3	Dr. H.R. Habibi
Body Defense System	3	Dr. H.R. Habibi
Thermoregulation	6	Dr. H.R. Habibi
Respiration	6	Dr. D. Syme
Circulation	7	Dr. D. Syme
Renal	7	Dr. C. Flynn
Gastrointestinal Physiology	6	Dr. M. Vijayan

LECTURE SCHEDULE - WINTER 2018

Body Fluids & Hemostasis **(H Habibi, 3 lectures)**
Jan 8-12
Body fluids and compartments
Blood cells and Hemostasis
Blood clotting

Body Defense System **(H Habibi, 3 lectures)**
Jan 15-19
Body fluids and compartments
Blood cells and Hemostasis
Hanges Blood clotting

Thermoregulation **(H Habibi, 6 lectures)**
Jan 22-Feb 2
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 5-16
Anatomy and lung/gill mechanics
Diffusion and gas exchange
O2 and CO2 transport
Acid/base balance
Regulation of breathing
Respiratory stress

Feb 18-24 **MID-TERM BREAK, NO LECTURES or LABS**

Feb 28, 2018 **Mid-Term Exam (lectures 1-18) (8:00 – 9:30 pm)**

Circulation **(D. Syme, 7 lectures)**
Feb 26 – Mar 12
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
Comparative cardiovascular patho/physiology

Renal Physiology **(C. Flynn, 7 lectures)**
Mar 14-28
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)**
Apr 2-April 13
Gastrointestinal control systems
Gastric motility
Gastric secretion
Liver and Biliary system
Intestinal digestion & absorption I
Intestinal digestion & absorption II

LAB SCHEDULE - WINTER 2018

Date	Exercise
Jan. 16 - 23	Lab 01 – Hematology
Jan 30 – Feb 6	Lab 02 – Immunology
Feb. 13 - 15	Lab 03 – Mechanics and Control of Ventilation (Lab Sections B01 – B06)
Feb. 19 – 23	NO LABS (Reading Week)
Feb. 27	Lab 03 – Mechanics and Control of Ventilation (Lab Sections B07 – B09)
Mar. 6 – 13	Lab 04 – Blood Pressure, Electrocardiography and Circulation
Mar. 20 – 27	Lab 05 – Renal function
Apr. 3 – 10	Lab 06 – Acid-Base Balance

Students will be expected to consult the library extensively when preparing laboratory reports or to supplement aspects of the lectures not adequately covered in the text. The library has been asked to place the books on the attached list of reserve books in the undergraduate reading room reserve collection. This is done purely for the convenience of the student and is not in any way meant to restrict the student to gathering necessary information from these books rather than any other appropriate ones.

Students will be expected to supply dissecting sets and graph paper. Laboratory coats or aprons are recommended. Laboratory reports are due 1 week following completion of the laboratory. If presented late they will be graded only if accompanied by a medical excuse. A Laboratory Examination will be included in the final examination scheduled by the registrar during the April examination period.