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

1. **Course: ZOOLOGY 577 – MAMMALOGY**

Lecture Section: L01 MWF 13:00-13:50 SA 125 WINTER 2018

Lab B01: M 16:00-18:50 BI 046

Course Coordinator/
Instructor: Dr. R.M.R. Barclay BI 330 220-3564 barclay@ucalgary.ca

D2L site: Zoology 577 Mammalogy

Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

2. **PREREQUISITE(S):** Biology 313 and one of Zoology 379, 403 or 477.01
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:

Term Paper*	25%	
Laboratory exam	15%	March 12
Midterm test	20%	February 26 16:00-18:00 (in lab period)
Oral Presentation	10%	
Final Examination	30%	(To be scheduled by the Registrar)

*TERM PAPER: Each student will select a topic (in consultation with the instructor) and prepare a term paper in the form of a literature review. These will be due March 28, 2018.

Each piece of work (term paper, 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.

Letter Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Min. Percent Required	90	87	84	81	78	74	70	66	62	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.6 of the University Calendar

5. Scheduled out-of-class activities:

FIELD TRIP: There will be a voluntary weekend field trip Feb. 3rd and 4th to the Kananaskis Field Station during which various aspects of mammalian winter ecology will be studied (e.g. subnivian conditions, winter mammal trapping & tracking, adaptations to winter).

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. N/A

Course Materials: TEXT: N/A

7. **Examination Policy**: No calculators or electronic devices are permitted for quizzes and exams. 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 on assigned papers will be a factor in the evaluation of those papers. See also Section E.2 of the University Calendar.

9. **Human studies statement:** Students in the course are not expected to participate as subjects or researchers. See also Section E.5 of the University Calendar. See also http://www.ucalgary.ca/pubs/calendar/current/e-5.html.

10. **Use of living and dead organisms**: Students will be expected to handle organisms during this course.

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.

11. **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;

(g) Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; http://ucalgary.ca/provost/students/ombuds**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 during 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

Z577 co W18; 12/5/2017 11:40 AM

COURSE OUTCOMES:

After successfully completing this course you should:

a. Understand and be able to explain the origin, evolution and diversity of mammals and the factors responsible for these things;
b. Understand and be able to explain the unique aspects of mammalian biology that distinguish them from other animals (Are there any? What are they?) – thermoregulation, reproduction, echolocation, sociality?
c. Be able to critically assess hypotheses regarding different aspects of mammalian biology and the evidence supporting/refuting those hypotheses;
d. Understand and be able to explain patterns of mammalian diversity geographically and taxonomically;
e. Be able to synthesize information on a particular topic from the primary literature and communicate it effectively to others, in writing and orally;
f. Be familiar with and able to use a variety of field techniques and equipment commonly used in studying mammalian ecology and behaviour;
g. Be able to identify species of Alberta mammals from their external appearance and morphology, and their skulls.

LAB SCHEDULE

Jan. 15, 22	Mammals of Alberta
Jan. 29	Field techniques - marking, trapping, radiotelemetry
Feb. 5	Field trip data presentation and analysis
Feb. 12	Mammals of Alberta (continued)
Feb. 26	MIDTERM (lecture exam)
Mar. 5	Mammals of Alberta (continued)
Mar. 12	LAB EXAM
Mar. 19, 26, Apr. 2, 9	Oral presentations

<u>Tentative</u> Lecture Topics – Zoology 577

1. Origin and evolution of mammals
   - what is a mammal?
   - the three major groups (Monotremes, Marsupials, Eutherians)

2. Monotremes – basic biology and unique aspects, electrolocation

3. Marsupials
   - origin and evolution
   - diversity and taxonomy
   - unique adaptations – reproduction
   - why are there so few large carnivores?

4. Eutherians
   - diversity and classical classification/phylogeny
   - evolution and radiation
   - continued species turnover
   - recent molecular-based relationships/phylogeny

5. Diversity and radiation of bats as an example of eutherians
   - mono- vs di-phyly debate
   - key adaptations - flight

6. Echolocation
   - whales and bats

7. Whale evolution (the confusion!)

8. Reproduction
   - ecology
   - behaviour (mating and parental care systems)
   - why don't male mammals lactate?
   - can females choose the gender of their offspring and why should they?

7. Life history strategies of mammals
   - patterns and anomalies
   - live fast and die young

8. Thermoregulation – torpor and hibernation, adaptations for desert environments

9. Digestion – herbivory in marsupials and eutherians

10. Conservation