

Biology 4211: Mammalogy

Origin, relationship, and structure of mammals. A survey of the families of living mammals: past and present distribution of important groups. Special attention is given to Ontario forms.

Instructors, Time and Place

Course Instructor: Dr. Brian McLaren, BB-1005B – 343-8010 ext. 8686 or brian.mclaren@lakeheadu.ca

Lectures RB-1021: Tuesdays and Wednesdays 8:30-11:20 am.

Lab Instructor: Dan Brazeau, CB-3020 – 346-7739 or dbrazeau@lakeheadu.ca

Lab CB-3015 **unless otherwise indicated**: Monday 2:30-5:30 pm.

Teaching Assistant: Wyatt Beach, wbeach@lakeheadu.ca

Required Texts

The Eternal Frontier. 2001, by T. Flannery, Atlantic Monthly Press, New York.

Mammalogy: Adaptation, Diversity and Ecology. 2020 (5th) edition, by Feldhamer, Drickamer, Vessey, Merritt, and Krajewski. Johns Hopkins. (**Fifth edition** has the current taxonomy you will be learning.)

Mammals of the Great Lakes Region. **2017 edition**, by A. Kurta, University of Michigan Press, Ann Arbor.

Note on the texts: It is your responsibility to read the assigned portions of each text in a timely fashion. Exams will test material not necessarily covered in lectures but from the text. To help you organize your reading in the main text (Feldhamer et al.), focus on the words highlighted in **bold type**. When working through Flannery's book, make use of a **concept map** (notes to follow the main concepts), and consult chapters 3-5 in Feldhamer et al. (2020) for help with organizing ideas. The lecture portion of this course emphasizes **concepts**, while your **practical** experience comes from directed and independent work in the lab sessions.

Note on lab portion: **Students can opt out of portions of the lab work involving carcasses if they arrange prior permission with Dan Brazeau.** Dissections and digestion constitute a minor risk of biohazards; students must be trained to a Biosafety Level 1 use of facilities for these labs. Dissection materials will be provided to you. You should bring your own safety glasses and lab coats. There will be one optional, but informative field trip to the International Wolf Center, Ely Minnesota. It will be held on a Saturday and Sunday, March 25-26. We will leave at 9:00 am on Saturday and plan to return to Thunder Bay at 8:00 pm on Sunday. Please sign up with Dan Brazeau by February 20th. Total cost for each student will likely be between \$75-100. The final cost will be determined based on rental costs and student attendance. Dan will provide information on the total cost of the trip before February 20th. The international border crossing will require you to have a valid passport or NEXUS card. Bring a copy of your passport, your health card and your LUSU health insurance identification number to Dan with your payment.

Goals of the Course

1. To understand the classification, structure, and natural history of mammals, including physiological, behavioral, and ecological adaptations.
2. To become familiar with some field and laboratory techniques involving study of mammals.
3. To learn about the distribution and identification of mammals, especially those species found in the western Great Lakes region.
4. To become acquainted with how mammals are valued by people.

Assignments, Due Dates and Grading

Weekly Quizzes and Participation	Quizzes and “Top Hat” facilitated discussion will occur each class on assigned readings in the Feldhamer et al. text. Your scaled mark includes participation in the quizzes and on correctness of responses.	10%
February 16 Quiz on Flannery’s <i>The Eternal Frontier</i>	Questions on Flannery’s interpretation of the ecological history of North America, emphasizing mammals. Also includes chapters 1-5 & 19 in Feldhamer et al. text.	10%
Mammals as part of human life: a report. Plan to be communicated to Dr. McLaren on February 14; report due April 11.	Each student will develop a research question to answer in essay format (3-5 pages double-spaced) using literature and a questionnaire with someone who works regularly with mammals. Ideas include a dairy farmer, a trapper, a veterinarian, a police dog trainer, handlers at Fort William Historical Park.	10%
WINTER STUDY BREAK		
Student presentations Please see the rubric below the table. Refer to chapters 11-21 in Feldhamer et al. To be scheduled <i>after the Study Break.</i>	Student pairs will present on main characteristics used to classify members of a mammal (sub) order together, and provide detailed information on an extinct and an extant member of the (sub) order. Plan 10-15 minutes for a class presentation.	5%
Lab exams and assignments	Refer to lab schedule distributed on Monday, January 9	55%
Final exam - Date TBA	The final exam will cover all components of the course textbook in describing six mammals from a shortlist	10%

Rubric for student presentations (total 50):

Has information on the taxon’s evolution been provided? (1-5 for detail) Are the two examples rich in detail? (1-10 for detail) Are other examples mentioned to assist the classification? (1-5 for organization) Are adaptations discussed? (1-5 for detail) Is the classification explained? (1-5 for detail) Has class discussion been prompted? (1-5 for earnest discussion) Are questions well answered? (1-5 for detail)

Organization of the Course

- Topic 1. **Reasons to study mammals and techniques used to study mammals***
Feldhamer, chapters 1 & 2; Lab: introduction to preparation of specimens and dissections; N.B. this portion of lab work is an **independent** project that you will keep on track during the first half of the semester; mammal snow tracking
- Topic 2. **Early evolution, shifting dominance from reptiles to mammals***
Feldhamer, chapters 3-5, 10 & 19; Flannery, Acts 1 & 2
- Topic 3. **Modern North American fauna and conservation issues***
Flannery, Acts 3, 4 & 5; Lab: introduction to boreal mammals; N.B. this portion of the lab work leads to a portion of your practical exam

- Topic 4. **Evolution of endothermy***
Feldhamer, chapter 8; Lab: dissections.
- Topic 5. **Implications of body size and body shape***
Feldhamer, chapters 6 & 8; several supplemental readings; Lab: introduction to morphometrics.
- Topic 6. **Feeding and trophic relationships***
Feldhamer, chapters 7 & 24; Lab: dissections.
- Topic 7. **Behaviour and sociality***
Feldhamer, chapters 22-23; Lab: ethogram analysis of wolf behavior.
- Topic 8. **Population dynamics and life history***
Feldhamer, chapters 25 & 26.

Academic Misconduct:

Please refer to the Student Code of Conduct - Academic Integrity for a complete description of your rights and responsibilities: <https://www.lakeheadu.ca/students/student-life/student-conduct/academic-integrity>.

Plagiarism of any kind will not be tolerated and will result in a mark of zero for the work. Cheating of any kind during lab or lecture exams will not be tolerated and will result in a mark of zero for the test and potentially further sanctions. Failure to follow the required rules for academic integrity for either plagiarism or cheating are likely to affect your academic record and may result in additional sanctions.