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
Dr. Brian McLaren, BB 1005B – Ph. 343-8686 or brian.mclaren@lakeheadu.ca
Lectures SN 2011: Tuesdays and Thursdays 8:30-9:50; Lab CB 3015 **unless otherwise indicated**; Monday 11:30-2:30; Instructor Dan Brazeau, CB 3020 – Ph. 346-7739 or dbrazeau@lakeheadu.ca

Required Texts
The Eternal Frontier. 2001, by T. Flannery, Atlantic Monthly Press, New York.
Mammalogy: Adaptation, Diversity and Ecology. 2015 (4^{th}) edition, by Feldhamer, Drickamer, Vessey, Merritt, and Krajewski. Johns Hopkins. (**Fourth edition** has current taxonomy.)
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 4-6 in Feldhamer et al. 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 digestions constitute a minor risk of biohazards; students must be trained to a Biosafety Level 1 use of facilities for these labs. 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 in March**. We will leave at noon on Saturday and plan to return to Thunder Bay at 8:00 pm on Sunday. Please sign up by paying $90 to the Herbarium Curator, CB 3014 by **February 10**. 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 Emma with your payment if you are travelling to Ely with us.

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

Participation	Quizzes will occur each Tuesday morning on assigned readings in the Feldhamer et al. text	**10%**
February 14 **Quiz on Flannery**'s *The Eternal Frontier*	Questions on Flannery's interpretation of the ecological history of North America, emphasizing mammals. Also includes chapters 1-6 & 20 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 4.**	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%**
MID TERM BREAK		
Student presentations Please see the rubric below the table. Refer to chapters 13-21 in Feldhamer et al. To be scheduled for *after Reading Week*.	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	See lab schedule distributed on Monday	**45%**
Final exam- Date TBA	The final exam will cover all components of the course except material from Flannery's *The Eternal Frontier*	**20%**

Rubric for student presentations (total 50):
Has information on the (sub) order'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 & 3; 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 4-6, 12 & 20; 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 10; Lab: dissections.

Topic 5. ***Implications of body size and body shape***
Feldhamer, chapters 7, 9 & 10; several supplemental readings; Lab: introduction to morphometrics.

Topic 6. ***Feeding and trophic relationships***
Feldhamer, chapters 8 & 25; Lab: dissections.

Topic 7. ***Behaviour and sociality***
Feldhamer, chapters 22-24; Lab: ethogram analysis of wolf behavior; optional trip to the International Wolf Center, Ely, Minnesota.

Topic 8. ***Population dynamics and life history***
Feldhamer, chapters 26 & 27