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
Lectures AT-1005 Tuesday & Thursday 1:00-2:20
Instructor: Brian McLaren – Ph. 343-8686 or email using WebCT
Lab CB-3015 **unless otherwise indicated**; Friday 11:30-2:30 (Instructor Don Barnes)
Teaching Assistant: Endre Lukacs (elukacs@lakeheadu.ca) 343-8041

Required Texts
The Eternal Frontier. 2004, by T. Flannery, Atlantic Monthly Press, New York.
Mammalogy: Adaptation, Diversity and Ecology. 2007 (**third**) edition, by Feldhamer, Drickamer, Vessey, Merritt and Krajewski, Johns Hopkins University Press, New York.
Mammals of the Great Lakes Region. 2nd 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. Main concepts from all texts will be covered in lectures and tutorials. To help you organize your reading in Feldhamer et al., focus on the words highlighted in **bold type**. When reading Flannery's book, develop a concept map (notes to follow the main concepts), organize ideas around the geologic time chart, and consult chapters 4, 5 & 20 in Feldhamer et al. for help with organizing ideas. The mid-term exam will combine the material from chapters 1-5 & 20 in Feldhamer with the essential overview of mammalian faunal history, emphasizing North America's ecosystems found in Flannery's text.

Note on lab portion: **Students can opt out of portions of the lab work involving carcasses if they arrange prior permission with Don Barnes.** 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 field trip to the International Wolf Center in Ely, Minnesota. It will be held on a Friday and Saturday, October 25 & 26. We will leave at 2:30 pm on Friday and plan to return to Thunder Bay at 8:00 pm on Saturday. Please sign up by paying $60 (subject to change) to Barbara Barnes by **October 4**. 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 Barbara with your payment if you are travelling to Ely with us. We will provide additional details later.

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.
3. To learn about the distribution and identification of mammals from the Great Lakes region.
4. To become acquainted with how mammals are valued by people.

Grading rubric for student presentations (total 50):
Has information on the (sub)order's evolution been provided? (1-loosely; 5-in detail)
Is an example from each location illustrated? (twice: 1-briefly; 10-with outstanding detail)
Are other examples mentioned? (0-no; several, 5-with good organization)
Are adaptations discussed? (0-no; 5-amply) Is classification described? (0-no; 5-in good detail)
Has class discussion been prompted? (0-no; 5-earnest) Are questions well answered? (0-no; 5-in detail)
There are written reports on wolf behaviour and on mammals in society in this course. See LU's policy on plagiarism. A grade of zero for any assignments turned in with evidence of plagiarism.

Organization of the Lectures and Laboratory Sessions (subject to change)

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 includes an **independent** project that you will keep on track during the first half of the semester; the lab section focuses on boreal mammals.

Topic 2. ***Early evolution, shifting dominance from reptiles to mammals***
Feldhamer, chapters 4-5; Flannery, Acts 1 & 2

Topic 3. ***Modern North American mammals***
Flannery, Acts 3, 4 & 5; Feldhamer, chapter 20; **classification on pp. 214-217**; Feldhamer, chapters 7, 10 & 11; student presentations in November will introduce other orders

Topic 4. ***Behaviour, mating systems, and sociality***
Feldhamer, chapters 21-23; Lab: ethogram-based analysis of wolf behaviour, followed by a trip to the International Wolf Center in Ely, Minnesota

Topic 5. ***Body size and body shape***
Feldhamer, chapters 6 & 9; several supplemental readings to tie together the important concepts explaining how mammals are built; Lab: skull morphometrics

Topic 6. ***Trophic relationships, population dynamics, and life history***
Feldhamer, chapters 24-26

You are encouraged to keep ahead in reading sections of the text that are announced as applicable each week, in order to be able to participate in class discussions and to learn concepts effectively.

Assignments, Due Dates and Grading

October 24 **Mid-term Test**	Questions on Flannery's interpretation of the ecological history of North America, emphasizing mammals. Also includes chapters 1-5 & 20 in Feldhamer et al. text.	**15 %**
October 29-November 28 **Student presentations** Please see the rubric below the table. Refer to chapters 12-19 in Feldhamer et al.	Student pairs will provide **main characteristics** for classifying a (sub)order together, and provide a detailed example of an extirpated or contemporary **North American member (family or species)** and an **exotic member** of the (sub)order. **Plan 10-15 minutes.**	**5 %**
November 19 (Tuesday due date) **Wolf behaviour report**	Students work in small groups with videos and ethograms to construct a report on wolf pack behaviour.	**15 %**
November 21 **Mammals as part of human life: Report:** Question(s) are due for review on October 3.	Each student will develop one or more questions to answer in essay format (3-5 pages double-spaced) after a visit to a mammal "user group." Ideas: a pet store, the Trappers' Convention, a dairy farm, the Wolf Center, a Woodland Caribou recovery team meeting, Chippewa Park, Old Fort William. Students may work in groups.	**10 %**
Dissections	Don Barnes will coordinate small groups; notes due	**2 %**
November 22 (includes display) **Independent projects**	Students work in small groups on dissections and other displays of anatomy; a poster can substitute for this lab.	**18 %**
November 29 **Lab exam:** No access to CB 3012 on Monday, Nov. 8 after 5:30	Test on boreal mammals. Students are responsible for identification by keys to the species level and life history information at the family level.	**15 %**
Final Exam	Focus will be on adaptations by (sub)order.	**20 %**