

# BIOO 475 – MAMMALOLOGY

Fall Semester 2017

## Instructor information

Instructor: Jedediah Brodie

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Office hours: Wed 9:00am, Thurs 11:00am. I can also meet outside these times, but appointments *must* be made in advance. No drop-ins.

## Teaching assistants

Robert Niese: robert.niese@umconnect.umt.edu

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## Course description

This course covers the evolution, biogeography, systematics/phylogenetics, anatomy, physiology, ecology, and natural history of mammals. We will cover all of the extant (and many of the extinct) mammal lineages, exploring the evolutionary and ecological forces that led to their current distributions and diversity. Concurrent enrollment in the lab is required -the lab will focus on identification and natural history.

## Required texts

Feldhamer et al. *Mammalogy*, 4<sup>th</sup> edition (2015). The 3<sup>rd</sup> edition is acceptable as well, but it is up to the student to identify discrepancies between the 3<sup>rd</sup> and 4<sup>th</sup> editions.

Foresman *Revised Key to the Mammals of Montana* (2012)

## Learning outcomes

1. Describe the evolutionary and biogeographic history of the major extant and extinct mammal lineages
2. Compare the ecological and evolutionary factors that shaped (and continue to shape) the diversification and spread of different mammal groups
3. Summarize the key morphological and physiological characteristics of the major mammal lineages
4. Identify mammals based on internal and external morphology
5. Interpret evolutionary relationships based on phylogenetic cladograms

## Lecture schedule

Date			Lecture/Discussion topic	Readings (do BEFORE class)
			<b>Section 1: Intro to Mammals</b>	
Sept	F	1	Course Intro + What makes a mammal?	
	M	4	NO CLASS -LABOR DAY	Ch 9
	W	6	Structure & Movement	Ch 7
	F	8	Reproduction	Ch 11
	M	11	Physiology & Thermoregulation	Ch 10

	W	13	Ancient origins (Paleozoic & Mesozoic)	Ch 5
			<b>Section 2: Biogeography &amp; Evolution of Mammals</b>	
	F	15	Monotremes	Ch 12: pp 242-247
	M	18	guest lecture	
	W	20	Marsupials 1	Ch 12: pp 247-269
	F	22	Marsupials 2	
	M	25	Xenarthra	Ch 16 ( <i>except</i> Pholidota)
	W	27	Afrotheria 1	Ch 13 (Tenrecoidea, Macroscelidea)
	F	29	Afrotheria 2	Ch 19
Oct	M	2	Review for Exam 1	
	W	4	EXAM 1	
	F	6	Afrotheria 3 (Proboscideans)	
	M	9	Cetartiodactyla 1	Ch 20 (Artiodactyla section)
	W	11	Cetartiodactyla 2	
	F	13	Cetartiodactyla 3 (Cetaceans)	Ch 21
	M	16	Carnivora 1	Ch 17
	W	18	Carnivora 2	
	F	20	guest lecture	
	M	23	guest lecture	
	W	25	Eulipotyphla & Pholidota	Ch 13 (Solenodonta, Soricomorpha, Erinaceomorpha); Ch 16 (Pholidota)
	F	27	Chiroptera 1	Ch 14
	M	30	Chiroptera 2	
Nov	W	1	Perissodactyla	Ch 20 (Perissodactyla)
	F	3	Review for Exam 2	
	M	6	EXAM 2	
	W	8	Lagomorpha	Ch 18 (Lagomorpha)
	F	10	NO CLASS -VETERANS DAY	
	M	13	Rodentia 1	Ch 18 (Rodentia)
	W	15	Rodentia 2	
	F	17	Scandentia & Dermoptera & Primates 1	Ch 15; Ch 13 (Scandentia, Dermoptera)
	M	20	Primates 2	
	W	22	NO CLASS	
	F	24	NO CLASS -THANKSGIVING	
			<b>Section 3: Behavior &amp; Ecology</b>	
	M	27	Carnivory, Insectivory, Piscivory	Ch 8 (pp 132-144)
	W	29	Herbivory, Frugivory, Nectarivory	Ch 8 (pp 144-161)
Dec	F	1	Communication	Ch 22
	M	4	Social systems	Ch 24
	W	6	Mating systems & Sexual selection	Ch 23
	F	8	Parental care	

	M	11	Dispersal & Migration	Ch 25
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### **Student Conduct Code**

Please read and familiarize yourself with the [Student Conduct Code](http://www.umt.edu/vpesa/Dean%20of%20Students/default.php) (<http://www.umt.edu/vpesa/Dean%20of%20Students/default.php>). In particular, note that we have *zero tolerance for plagiarism*. Student assignments may be run through anti-plagiarism software such as DupliChecker or PaperRater.

### **Lab schedule**

Date		Lab topic	Assignments due in lab
Sept	5	Writing assignments, lab procedures/expectations, exams and lab access; use of taxonomic keys	
	12	Mammalian skull, dentition, skeleton; Order Carnivora I (Ursidae, Procyonidae)	Field journal 1
	19	Carnivora II (Canidae, Felidae)	Field journal 2
	26	Carnivora III (Mustelidae, Mephitidae)	Field journal 3
Oct	3	EXAM 1	
	10	Eulipotyphyla, Chiroptera	Field journal 4
	17	Cetartiodactyla, Perissodactyla, Lagomorpha	Field journal 5; Term Paper draft 1
	24	Mammal hair	Field journal 6
	31	EXAM 2	
Nov	7	Rodentia I (Sciuridae, Castoridae, Geomyidae)	Field journal 7; Peer review of term papers
	14	Rodentia II (Heteromyidae, Dipodidae, Muridae)	Field journal 8
	21	Rodentia III (Cricetidae, Erethizontidae)	Field journal 9
	28	Owl pellet dissection; tracks, scat, and sign	Field journal 10
Dec	5	Owl pellet analysis	Term Paper final draft
	12	LAB FINAL	

### **Missed exams**

I do not offer make-up exams except in the case of documented medical or psychological emergencies. In other words, I need a note from a doctor saying that you were unable to be in class for a very good medical reason. If someone in your family passes away, please accept my condolences. But you'll still need to be there for the exam unless you provide a note from a registered psychologist or psychiatrist that describes in detail how you were mentally compromised on the day of the exam.

### **Disability modifications**

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability that adversely affects your academic performance, and if you have not already registered with Disability Services, please contact Disability Services

in Lommasson Center 154 or call (406) 243-2243. The TAs and I will work with you and Disability Services to provide appropriate course modifications.

**Grading**

Assignment	Points
Lecture exam 1	100
Lecture exam 2	100
Lecture final exam	150
Lab exam 1	100
Lab exam 2	100
Lab final exam	150
Field journal	100
Term paper	150
Participation in class discussions & field trips	50
TOTAL	1000

Final exams will be cumulative, but weighted towards material covered since exam 2.