

Mammalogy (Biology 483) Fall, 2018 - Syllabus

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Office Hours: Tuesdays after lecture (10:30-11:30); Wednesdays from 8:30-9:30.

Research Interests: Theoretical systematics; Rodent systematics; Hybridization and speciation; Molecular evolution, Comparative phylogeography; Conservation genetics.

TAs: Christine Trahan (trah2942@vandals.uidaho.edu)
Ike Brown (brow6291@vandals.uidaho.edu)

There is no required text.

Supplemental Text: Feldhammer et al. 2015. *Mammalogy: Adaptation, Diversity, and Ecology*, 4th edition. McGraw-Hill.

Lab Supplement: Jones, J. K. and R. W. Manning. Illustrated Key to Skulls of Genera of North American Land Mammals.

Internet Resources:

<http://www.webpages.uidaho.edu/~jacks/Mammalogy.html> – This site will have all my lecture notes (with links to primary literature), labs, and old exams posted. The lecture notes are the exact notes from which I will lecture, and I will try to have them posted before the relevant class period. **In order to do well, however, you will need to attend class.** Please remember that I am under no obligation to provide these, that these are unedited notes, and therefore may contain typos.

<http://imnh.isu.edu/digitalatlas/bio/mammal/mamfram.htm> - This is the mammal section of the digital atlas of Idaho. It has information on field identification, distribution, habitat, and habits for almost all mammal species in Idaho. However, its taxonomy is out of date.

<http://animaldiversity.ummz.umich.edu/site/accounts/information/Mammalia.html> – This is an *amazing* source of information made available through the University of Michigan Museum of Zoology. Information available includes detailed photographs of skeletal anatomy (including rotating skulls), life history data from many species, notes on conservation of many species, etc. For lab 1, you'll particularly appreciate:
http://animaldiversity.ummz.umich.edu/accounts/Canis_lupus/specimens/collections/contributors/anatomical_images/dog_skull/dog_lateral/ and associate pages.

<http://www.bucknell.edu/msw3/> - On-line version of *Mammal Species of the World, 3rd Ed.* This is the latest (2005) checklist of all mammalian species, by Don Wilson and DeeAnn Reeder.

<http://1kai.dokkyomed.ac.jp/mammal/en/mammal.html> - This site has excellent photographs of many mammal crania.

Prerequisite: Biol 114, Biol 115

Objectives (Learning Outcomes): This course has two major goals. The first is to provide you with a conceptual understanding of many aspects of mammalian biology. Because this will require a foundation of factual knowledge to build upon, the second goal is to provide a detailed understanding of mammalian anatomy, diversity, and natural history (especially of local forms), as well as some of the techniques that mammalogists use to acquire such knowledge. These two goals will be addressed in lecture and lab respectively, and to the greatest extent possible, I've organized the schedule to facilitate the integration of lab with the lectures.

Note 1: This course will be taught very much from an evolutionary perspective, for three reasons.

First, descent with modification leading to diversification is the only scientifically justifiable explanation for the origin of current biological diversity, including mammalian diversity.

This position is consistent with that of the American Association for the Advancement of Science (<http://www.project2061.org/publications/guides/evolution.pdf>) and the National Academy of Sciences (<http://www.nationalacademies.org/evolution/Intro.html>).

Second, descent with modification is as unifying in biology as the concept of an ancient Earth is unifying in geology. The entire science of biology is the study of the contemporary products of evolutionary processes.

Third, an evolutionary perspective provides an amazingly convenient framework for organizing factual knowledge.

Note 2: University policy with respect to firearms has been expressed in the following two statements (<http://www.uidaho.edu/public-safety-and-security/Weapons-on-Campus>):

"The University of Idaho bans firearms from its property with only limited exceptions. One exception applies to persons who hold a valid Idaho enhanced concealed carry license, provided those firearms remain concealed at all times. If an enhanced concealed carry license holder's firearm is displayed, other than in necessary self-defense, it is a violation of University policy. Please contact local law enforcement (call 911) to report firearms on University property."

"University of Idaho leadership remains committed to maintaining a safe work, living and learning environment on campus. We will not tolerate any threatening use of firearms or any other weapons. While authorized license holders may have familiarity and be at ease carrying a loaded firearm, we ask that they be aware that many people are not familiar with handguns and are uncomfortable in their presence."

Make-up Policy: Make-up exams will be given only for the first two lecture exams, and for those, only if I have been contacted prior to the time of the exam. A missed lab quiz will not be made up, and University policy prohibits students from taking the final exam at any time other than the regularly scheduled time (Monday, Dec. 10th; 8:00-10:00).

Late Assignments: Five points will be deducted for every day that an assignment is late.

Disability Support Services Reasonable Accommodations Statement: Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services located

in the Idaho Commons Building, Room 306 in order to notify us as soon as possible regarding accommodation(s) needed for the course.

Phone: 5-6307; email: cdar@uidaho.edu; web: <https://www.uidaho.edu/current-students/cdar>

T.A. Responsibilities: The TA will be responsible for all aspects of lab quizzes, will give most lab lectures, will grade lab reports, and grade the lab practical. In addition, one will be present in lab during the sessions.

Grading: Final grades will be assigned based on points accumulated. These points will come from the following:

Lecture:

Exam I (October 4)	100 pts.
Exam II (November 8)	100 pts.
Final Exam (December 10)	100 pts.

Laboratory:

Quizzes – 8 quizzes for 10 points each*	80 pts.
Lab Reports – 2 reports for 25 points each	50 pts.
Lab Exam I** (10/16 or 10/17)	70 pts.
Lab Final (12/4 or 12/5)	80 pts.

Total 580 pts.

Note that lab quizzes will usually be given at the beginning of the subsequent lab period. However, the quiz on Mammalian Anatomy will be given at the beginning of the lab sessions on September 4th/5th. If you are in the Tuesday lab section, you must take each quiz and exam on the appropriate Tuesday; if you're in the Wednesday section, you must take each quiz and exam on the appropriate Wednesday.

Lab reports are due at the beginning of the lab period, two weeks from the date the material was covered, as noted in the Lab Schedule.

*I will drop your lowest quiz score and double your highest quiz score.

**If your score on the Lab Final is higher than your score on the Lab mid-term, I will adjust the Midterm score up accordingly.

Lecture Schedule

Week	Date	Lecture Topic
I	21 Aug. 23 Aug.	Introduction, Characteristics of Mammals Mammalian Characters/Origin of Mammals
II	28 Aug. 30 Aug.	Origin of Mammals Origin of Mammals/Mammal Diversity
III	4 Sept. 6 Sept.	Mammal Diversity: Early Lineages/Monotremes Mammal Diversity: Metatherians
IV	11 Sept. 13 Sept.	Mammal Diversity: Eutherians Mammal Diversity: Eutherians
V	18 Sept. 20 Sept.	Disparity in Diversity Dentition
VI	25 Sept. 27 Sept.	Diet and Digestive System Species Concepts in Mammals
VII	2 Oct. 4 Oct.	Species Concepts in Mammals Exam I
VIII	9 Oct. 11 Oct.	Evolution of Ear Ossicles Locomotion I: Flight
IX	16 Oct. 18 Oct.	Locomotion II: Functional Morphology Locomotion III: Terrestrial & Aquatic
X	23 Oct. 25 Oct.	Reproduction I: General Patterns Reproduction II: Adaptations
XI	30 Nov. 1 Nov.	Reproduction II: Adaptations Social Behavior
XII	6 Nov. 8 Nov.	Social Behavior Exam II
XIII	13 Nov. 15 Nov.	Population Cycles Population Cycles
XIV	Fall Recess	
XV	27 Nov. 29 Nov.	Conservation & Genetics Conservation & Genetics
XVI	4 Dec. 6 Dec.	Thermoregulation/Water Balance Thermoregulation/Water Balance

Laboratory Schedule

Week	Dates	Topic
I	8/21, 8/22	Lab 1: Mammalian Anatomy – Quiz on 9/4 or 9/5
II	8/28, 8/29	Review Mammalian Anatomy
III	9/4, 9/5	Lab 2: Mammal Diversity: Monotremata, Metatheria, Xenarthra, & Insectivora – Quiz on 9/11 or 9/12
IV	9/11, 9/12	Lab 3: Mammal Diversity: Chiroptera, Primates, Scandentia & Dermoptera – Quiz on 9/18 or 9/19
V	9/18, 9/19	Lab 4: Mammal Diversity: Rodentia I – Quiz on 9/25 or 9/26
VI	9/25, 9/26	Lab 5: Systematics (Lab Report due 10/9 or 10/10)
VII	10/2, 10/3	Lab 6: Mammal Diversity: Rodentia II – Quiz on 10/9 or 10/19
VIII	10/9, 10/10	Review for Practical 1
IX	10/16, 10/17	Lab Exam I
X	10/23, 10/24	Lab 7: Population Biology (Lab Report due 11/13 or 11/14)
XI	10/30, 10/31	Lab 8: Mammal Diversity: Lagomorpha, & Afrotheria: Tubulidentata, Proboscidea, Sirenia, Hyracoidea, Afrosoricida & Macroscelida – Quiz on 11/6 or 11/7
XII	11/6, 11/7	Lab 9: Mammal Diversity: Carnivora & Pholidota – Quiz on 11/13 or 11/14
XIII	11/13, 11/14	Lab 10: Mammal Diversity: Perissodactyla & Cetartiodactyla - Quiz on 11/27 or 11/28
XIV	11/20, 11/21	No Labs (Fall Recess)
XV	11/27, 11/28	Review for Lab Final
XVI	12/4, 12/5	Lab Final
