Syllabus Fall 2018: Mammalogy (EBIO 4760/5760)

Description: This is a lecture and lab course with the goal of providing a foundational understanding of the study of mammals. The lecture and lab will cover the origin, evolution, adaptation, biogeography, physiology, ecology, behavior, and taxonomy of mammals of the world, NA, and Colorado. The lab uses mammal skins, bones, and/or tissues. The prerequisites include the General Biology Lecture Courses (EBIO 1210 & 1220) or equivalent. This is an upper division course—we will delve much deeper into the subject matter and require a larger time-commitment to comprehend the material fully.

Instructor: Dr. Christy M. McCain
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Office Hours: Monday 10-11am, Thursday 1-2pm, or by appointment

Teaching Assistant: Michael Drake
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Office: SEEC Desk #28, Ramaley desk (TBA)
Office Hours: Tuesday 10-11am SEEC, Wed. 4-5pm Ramaley or by appointment

Lecture: MWF 9:00-9:50am
Lecture Location: Ramaley N1B31
Lab: Thursday 9-11:50am or Thursday 2-4:50pm
Lab Location: Museum Collections/Bruce Curtis Bldg E280

Required Items:

(1) Mammalogy Lab Manual—available at printing cost in lab ($17; 215 pages)
(2) iClicker

Highly Recommended Items :

(1) Mammalogy: adaptation, diversity, and ecology. Feldhamer, Drickamer, Vessey, Merritt, and Krajewski. John Hopkins Press. 4th edition (3rd edition okay) [**FDR**; Cheap used copies available on Amazon; also on reserve at Norlin Library]
(2) Peterson Field Guide to Mammals of North America, 4th edition. Reid, F. 2006. Houghton Mifflin Harcourt Press.

Other good mammalogy sources, but not required:

Animal Diversity Web. (http://animaldiversity.ummz.umich.edu/site/accounts/information/Mammalia.html).
Armstrong, D. M., J. P. Fitzgerald, and C. A. Meaney. 2011. Mammals of Colorado. Denver Museum of Nature and Science, and University of Colorado Press.
Borror, D. 1960. Dictionary of Word Roots. Mayfield Publishing Co.
Jones, J. K., Jr., and R. W. Manning. 1992. Illustrated key to skulls of genera of North American land mammals. Texas Tech University Press, Lubbock.
Lawlor, T. E. 1979. Handbook to the orders and families of living mammals. Mad River Press, Arcata.
Vaughn, T. A., J. M. Ryan, and N. J. Czaplewski. 2009. Mammalogy, 5th edition. Jones and Bartlett Pub.

Course Schedule: A preliminary schedule of lectures and labs is attached. Lecture and lab topics and dates are subject to change. Reading assignments for each week of lecture (based on FDR 4th edition) and lab are specified. To encourage students to participate in the lecture material, **iClickers are required** and various numbers of lecture questions and points will be available each day for a total of 100 points across the semester. iClickers remotes are available at the CU Bookstore and should be registered at MyCUInfo.

Labs: It should be obvious that attendance at the lab sections is essential. You can probably find a way to work around missing an occasional lecture, but labs cannot be made up once the week is over and the specimens have been put away. If you must miss your assigned lab during some week, attend the other lab section. Let the lab instructor know you're there. Because labs are so important in this class, we do keep track of attendance. **Five points will be subtracted from your final grade for every lab missed.**

Exams: There will be 2 lecture exams, a final exam, and 3 lab exams; none are cumulative, but each does build upon the previous sections. Each exam is worth 100 pts for undergraduates. Questions will be fill-in the blank, short answers, and paragraph form. Each exam will include additional, advanced questions for graduate-level students only (EBIO 5760) worth an additional 25 pts. There will be NO make-up exams given during the semester or for the final, so plan on attending during scheduled exam times.
*****The final exam is scheduled on Wednesday, Dec. 19th at 130-4pm*****

Field Trip & Mammal Observations: Most mammals are hard to see since they are small and nocturnal. However, some can be seen during the day or with a little bit of effort and luck. Thus, we will take a Saturday field trip to Rocky Mountain National Park to observe mammals and sign of mammals. There will be two dates offered and you must attend one. Additionally, digital mammal observations are required—there are 30 to document as observed and correctly identified using a camera with date/time imbedded with accompanying selfie with same date/time to insure it was your observation. More information on these observations is available on the class website. There is also a competition for who can observe the most Colorado mammals (those more difficult to see) with digital observation beyond the required species and signs. There will be extra credit for 1st, 2nd and 3rd place winners!

Grading: As a rule-of-thumb, grades will be awarded as follows: 90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; below 60% = F. Borderline cases = "+" & "-".

Activity:	**Undergrad Level (4760):**	**Graduate Level (5760):**
Lecture Exams (100 pts each)	200 points	250 points
Lab Exams (100 pts each)	300 points	375 points
Final Exam	100 points	125 points
Field Trip & Observations	100 points	100 points
iClicker Participation	100 points	100 points
Graduate Project:	--	100 points
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Total	800 points	1050 points

Graduate Project (EBIO 5760 only): 100 points. Graduate students will meet as a group with Dr. McCain the second week of classes and discuss possible projects (solitary or group versions). Then, after the group decision of the project(s), we will set a timeline for progress and deadlines.

Required Syllabus Administrative Reminders:

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the Student Code of Conduct.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu); 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the

OIEC website. Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, **please let the instructor know 2 weeks ahead if you will be missing a lab or lecture exam for rescheduling at another time.**

See the campus policy regarding religious observances for full details.

DAY	EBIO 4760/5760: MAMMALOGY	READINGS*	THURSDAY LAB
8/27	What is Mammalogy & Why Do We Care?	Lecture: FHR 1-4 Lab: Manual Intro & 1	Mammal Lab Introduction & Osteology
8/29	What is a Mammal?		
8/31	Mammalian Systematics I		
9/3	**LABOR DAY – NO CLASS**	Lecture: FHR 4 skim Part 3 Lab: Manual 2, FHR 12	Prototheria & Metatheria
9/5	Mammalian Systematics II & Orders I		
9/7	Mammal Orders II		
9/10	Mammal Orders III	Lecture: FHR skim Part 3 Lab: Manual 3, FHR 13, 16	"Insectivora", Macroscelidea, Scandentia, Xenarthra, Pholidota, Tubulidentata
9/12	Mammal Orders IV		
9/14	Mammal Orders V		
9/17	Mammalian Evolutionary History I	Lecture: FHR 4-5 Lab: Manual 1-3, FHR 12-13, 16	**LAB EXAM I** (100 pts)
9/19	Mammalian Evolutionary History II		
9/21	Mammalian Evolutionary History III		
9/24	Historical Biogeography of Mammals I	Lecture: FHR 5-6, PDFs Lab: Manual 4, FDR 13-15	Dermoptera, Chiroptera, Primates
9/26	Historical Biogeography of Mammals II		
9/28	**LECTURE EXAM I** (100 pts)		
10/1	Ecological Biogeography of Mammals I	Lecture: FHR 6, 26-27, PDFs Lab: Manual 5, FHR 18	Rodentia & Lagomorpha
10/3	Ecological Biogeography of Mammals II		
10/5	Ecological Biogeography of Mammals III		
10/8	Ecological Biogeography of Mammals IV	Lecture: FHR 7 Lab: Manual 6, FHR 17, 19	Carnivora, Hyracoidea, & Sirenia
10/10	Mammalian Abundance		
10/12	Mammalian Adaptations: Size & Shape		
	*FHR readings listed for Edition 4; Edition 3 slightly different		

DAY	EBIO 4760/5760: MAMMALOGY	READINGS*	THURSDAY LAB
10/15	Locomotion: Variation in Mammals	Lecture: FHR 7-8 Lab: Manual 7, FHR 19-21	Proboscidea, Perissodactlya Artiodactyla & Cetecea
10/17	Locomotion: Skeletal Adaptation I		
10/19	Locomotion: Skeletal Adaptation II		
10/22	Mammalian Reproduction: Variation & Cycles	Lecture: FHR 11, 9 Lab: Manual 4-7, FHR 13-15, 17-21	REVIEW LAB
10/24	Mammalian Reproduction: Milk		
10/26	Mammalian Thermoregulation & Metabolism		
10/29	Adaptations to the Cold I	Lecture: FHR 9-10 Lab: Manual 4-7, FHR 13-15, 17-21	**LAB EXAM II** (100 pts)
10/31	Adaptations to the Cold II		
11/2	Adaptations to the Cold III		
11/5	Adaptations to the Heat I	Lecture: FHR 9-10 Lab: Manual 8, Peterson Guide	COLORADO MAMMALS I
11/7	Adaptations to the Heat II		
11/9	**LECTURE EXAM II** (100 pts)		
11/12	Echolocation I: Bats	Lecture: FHR 14 & 21 Lab: Manual 9, Peterson Guide	COLORADO MAMMALS II
11/14	Echolocation II: Adaptations & Habitat		
11/16	Echolocation III: Cetaceans		
11/19	**FALL BREAK—NO CLASS**		
11/21			
11/23			
11/26	Social Behavior I	Lecture: PDFs, FHR 22-24 Lab: Manual 10, Peterson Guide	COLORADO MAMMALS III
11/28	Social Behavior II		
11/30	Social Behavior III		
DAY	*FHR readings listed for Edition 4; Edition 3 slightly different		

DAY	EBIO 4760/5760: MAMMALOGY	READINGS*	THURSDAY LAB
12/3	Social Behavior III	Lecture: FHR 24-25 Lab: Manual 8-10, Peterson Guide	REVIEW LAB
12/5	Mammalian Conservation I		
12/7	Mammalian Conservation II		
12/10	Mammalian Conservation III	Lecture: FHR 30, PDFs Lab: Manual 8-10, Peterson Guide	**FINAL LAB PRACTICAL** (100 pts)
12/12	Mammalian Conservation IV		
12/14	**No class: Finals prep day**		
12/19	**FINAL EXAM (Wednesday 1:30-4 pm)**	Lecture classroom	