

Syllabus Fall 2025: Mammalogy (EBIO 4760/5760; MUSM 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, North America, 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**
Professor in EBIO & Curator of Vertebrates
Email: christy.mccain@colorado.edu
Phone: 1-303-735-1016
Office: Museum Collections/Bruce Curtis E190C
Office Hours: Monday 10 am-noon or by appointment

Teaching Assistants: **Kira O'Hare**
Ecology & Evolutionary Biology Graduate Student
Kira's Email: kira.ohare@colorado.edu
Kira's Office: MCOL E190A
Kira's Office Hours: Thursday 3-5pm or by appointment

Lecture: MWF 9:05-9:55am

Lecture Location: Ramaley N183

Labs: Tuesday 9:30am-1220 pm or Tuesday 2:00-4:50 pm

Lab Location: Museum Collections/Bruce Curtis Bldg: MCOL E280

Required Items:

- (1) **Mammalogy Lab Manual**—available at printing cost in lab (~\$25; 215 pages)
- (2) **iClicker Cloud**—free; sign up and link iClicker+ to an iClicker Student App account (see below)

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; copy on reserve in CU library; some chapters available on our Canvas page]
- (2) **Peterson Field Guide to Mammals of North America**, 4th edition. Reid, F. 2006. Houghton Mifflin Harcourt Press [ebook available at CU Library].

Other good mammalogy sources:

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.

Class Participation & iClickers: To encourage students to participate in the lecture material, **iClickers accounts are required** and various numbers of lecture questions and points will be available each day for a total of 120 points (~15% of grade) across the semester. You will need to create an iClicker Student App account (<https://oit.colorado.edu/tutorial/cuclickers-set-iclicker-reef-student-account>) and link your clicker to the App account (https://oit.colorado.edu/tutorial/cuclickers-add-iclicker-remote-id-student-account?utm_source=tutorial/cuclickers-add-iclicker-remote-id-reef-student-account&utm_campaign=redirect) in order for your clicker grade to be counted into our gradebook. You will also need to register for our course in the Student App (https://oit.colorado.edu/tutorial/cuclickers-using-iclicker-student-app-class?utm_source=tutorial/cuclickers-using-iclicker-reef-class&utm_campaign=redirect), and link your App account to Canvas. Information on how to do this is located on the CUClickers Student Resources page (https://oit.colorado.edu/services/learning-spaces-technology/cuclickers-iclickers/help/student-resources?utm_source=services/learning-spaces-technology/cuclickers/help/student-resources&utm_campaign=redirect). There is also a youtube video for setting up your clickers: https://www.youtube.com/watch?v=9KWQv_d7icQ. Our classroom has limited wifi capabilities (poor rating). Therefore, I recommend you purchase and use a physical iClicker for class. You may even be able to check one out from the Norlin circulation desk for the semester, on a first-come, first-served basis. If you choose to use the iClicker student app on your phone or computer, keep in mind that you may experience connection issues, and we cannot be held responsible for these lost points. **Please set up your iClicker on the app BEFORE you get to class.**

Lecture Quizzes: There will be six lecture quizzes: 5 during the semester and 1 during finals. All lecture exams are online, open-note, and open-ended synthesis questions. Each should take 40-50 minutes, but everyone will have 90 minutes once started within a three-day testing window. **AI use is not allowed, and all answers will be checked for AI use. If AI is used and answers are not based on classroom lectures and discussions, then a zero will be given.** Quizzes vary in numbers of questions and points (i.e., 33-66) for a total of 300 points across the semester for undergraduates. Graduate students will have an additional question or two per quiz for an additional 10 points per quiz for a total of 360 points across the semester.

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 due to illness, attend the exam review session for access to miss material. 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.**

Lab Exams: There will be 3 lab exams. None are cumulative, but each does build upon the previous information. Lab exam questions will be fill-in the blank or short answers. Each lab exam is worth 100 pts for undergraduates. For graduate students, each lab exam will include additional, advanced questions worth an additional 25 pts. **There are no make-up lab exams** due to the time constraints of setting up the specimen stations and the access time for the classroom. Plan accordingly.

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. Mammal observations are required. There are 14 species and 3 signs 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. These are due at various points across the semester (i.e., 5 in Sept.; 6 in Oct.; and 6 in Dec.). 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 (20 pts), 2nd (10 pts), and 3rd place (5 pts) winners! There are two optional field trips to see mammals in the Front Range and Rocky Mountain National Park. We highly recommend these as most trips we see most, if not all, the required mammal sightings, so your observations can be completed in a single day (or with just 1-2 left to document). The field trips are especially critical for those students without access to personal cars.

Mammal Extinction Risk Bracket: In an application of our discussion of environmental adaptations, climate change and conservation, we will compete with individually chosen mammal species for those that are best- and worst-suited to withstand the pressures of anthropogenic change. Participation in the initial species documentation is 10 points, and participation in the bracket head-to-head competitions is another 10 points. Prizes will be awarded for the winner and runner-up.

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 Quizzes	250 points	300 points
Lab Exams	300 points	375 points
Final Lecture Quiz	50 points	60 points
Mammal Observations	51 points	51 points
Class/iClicker Participation	120 points	120 points
Mammal Extinction Risk Bracket	20 points	20 points
Graduate Project:	--	100 points
-----	-----	-----
Total	791 points	1026 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.

Syllabus Statements

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

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, see [Temporary Medical Conditions](#) on the Disability Services website. **If you have a temporary medical condition or required medical isolation for which you require accommodation, please let Dr. McCain or your lab TA know asap. Please ask classmates for notes and/or review lecture and lab slides on Canvas for days missed.** Also see [Temporary Medical Conditions](#) on the Disability Services website.

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 Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), 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. Understanding the course's syllabus is a vital part of adhering to the Honor Code.

All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution: StudentConduct@colorado.edu. Students found responsible for violating the Honor Code will be assigned resolution outcomes from Student Conduct & Conflict Resolution and will be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

Religious Holidays

Campus policy requires faculty to provide reasonable accommodations for students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. Please communicate the need for a religious accommodation in a timely manner. 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.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information does not always align with how they identify. If you wish to have your preferred name (rather than your legal name) and/or your preferred pronouns appear on your instructors' class rosters and in Canvas, visit the [Registrar's website](#) for instructions on how to change your personal information in university systems.

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure 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, marital status, political affiliation, or political philosophy.

Additional classroom behavior information

- [Student Classroom and Course-Related Behavior Policy](#).
- [Student Code of Conduct](#).
- [Office of Institutional Equity and Compliance](#).
- [Student Code of Conduct](#).
- [Office of Institutional Equity and Compliance](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner abuse (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who have been

subjected to misconduct can contact OIEC at 303-492-2127 or email OIEC@colorado.edu. Information about university policies, [reporting options](#), and [OIEC support resources](#) including confidential services can be found on the [OIEC website](#).

Please know that faculty and graduate instructors are required to inform OIEC when they are made aware of incidents related to these concerns regardless of when or where something occurred. This is to ensure the person impacted receives outreach from OIEC about resolution options and support resources. To learn more about reporting and support a variety of concerns, visit the [Don't Ignore It page](#).

Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#), located in C4C, or call (303) 492-2277, 24/7.

Free and unlimited telehealth is also available through [AcademicLiveCare](#). The [AcademicLiveCare](#) site also provides information about additional wellness services on campus that are available to students.

AI & Class Content Usage

The use of AI for quizzes, assignments, or exams is not allowed. The materials presented in this class in any form from text to video and online to in-person are only for the use in our class. **My written permission is required to share class materials outside** of the CU Mammalogy 2025 learning environment.

DAY	MAMMALOGY LECTURE	MONDAY READINGS	TUESDAY LAB
8/22	Introduction to Mammalogy	--	--
8/25	Mammal Traits I	Lab Manual Intro & 1	Mammal Lab Introduction, Osteology and Observations
8/27	Mammal Traits II		
8/29	Mammal Traits III		
9/1	LABOR DAY – NO CLASS	Lab Manual 2	Prototheria & Metatheria
9/3	Mammal Traits IV [Quiz 1 Friday-Sunday]		
9/5	Mammal Evolutionary History I		
9/8	Mammal Evolutionary History II	Lab Manual 3	"Insectivora", Macroscelidea, Scandentia, Xenarthra, Pholidota, Tubulidentata
9/10	Mammal Evolutionary History III		
9/12	Mammal Evolutionary History IV		
9/15	LAB EXAM STUDY DAY (No class)	Lab Manual 1-3, Animal Diversity Web	LAB EXAM I (100 pts)
9/17	Historical Biogeography of Mammals I		
9/19	Historical Biogeography of Mammals II		
9/22	Pleistocene Megafaunal Extinction [Quiz 2 Wednesday-Saturday]	Lab Manual 4	Dermoptera, Chiroptera, Primates Observations (n = 5) due 9/24
9/24	Ecological Biogeography of Mammals I		
9/26	Ecological Biogeography of Mammals II		
9/29	Ecological Biogeography of Mammals III	Lab Manual 5	Rodentia & Lagomorpha
10/1	Ecological Biogeography of Mammals IV		
10/3	Mammal Populations I		
10/6	Mammal Populations II	Lab Manual 6	Carnivora, Hyracoidea, & Sirenia
10/8	Mammalian Adaptations: Size & Shape [Quiz 3 Friday-Sunday]		
10/10	Adaptations to the Cold I		

DAY	MAMMALOGY LECTURE	MONDAY READINGS	TUESDAY LAB
10/13	Adaptations to the Cold II	Lab Manual 7	Proboscidea, Perissodactyla, Cetartiodactyla
10/15	Adaptations to the Cold III		
10/17	Adaptations to the Cold IV		
10/20	Adaptations to the Cold V [Quiz 4 Wednesday-Friday]	Lab Manual 4-7 & Animal Diversity Web	REVIEW LAB Observations (n = 6) due 10/24
10/22	Adaptations to Heat I		
10/24	Adaptations to Heat II		
10/27	LAB EXAM STUDY DAY (No class)	Lab Manual 4-7 & Animal Diversity Web	LAB EXAM II (100 pts)
10/29	Mammals & Climate Change I		
10/31	Mammals & Climate Change II		
11/3	Mammals & Climate Change III	Lab Manual 8-10 & Peterson Guide	COLORADO MAMMALS I
11/5	Mammal Conservation I [Quiz 5 Friday-Sunday]		
11/7	Mammal Extinction Risk Bracket I		
11/10	Mammal Extinction Risk Bracket II	Lab Manual 8-10 & Peterson Guide	COLORADO MAMMALS II
11/12	Mammal Extinction Risk Bracket III		
11/14	Mammal Conservation II		
11/17	Mammal Conservation III	Lab Manual 8-10 & Peterson Guide	COLORADO MAMMALS III
11/19	Echolocation I: Bats		
11/21	Echolocation II: Adaptations & Habitat		
11/24	FALL BREAK: No Classes		
11/26			
11/28			

	MAMMALOGY LECTURE	MONDAY READINGS	TUESDAY LAB
12/1	Echolocation III: Cetaceans I	Lab Manual 8-10, Peterson Guide	FINAL LAB PRACTICAL (100 pts) Final Observations (n = 6) due 12/5
12/3	Echolocation IV:Cetaceans II		
12/5	Mammalogy Final Topics, Review, Discussion		
	FINAL QUIZ (Available 12/5-12/10)	On Canvas	