

Fall 2023

Mammalogy
IB 462 / NRES 442 (4 credits)

Instructor: Dr. Daniel J. Miller | millerdj@illinois.edu

Office Hours: by appointment 9-11 am Tuesday, Morrill Hall 665D

Teaching Assistant: Nathan Alexander | nba2@illinois.edu

Office Hours: by appointment

Course Description

The course covers major areas of Mammalogy in depth including the evolution of mammalian diversity, systematics of animal phenotypes, the neurobiology of behavior, and ecological conservation. Lab time will provide students with a hands-on understanding of mammalian characteristics, evolutionary relationships, species identification, and natural history.

In all settings, questions are genuinely welcomed.

Lectures: Tuesdays & Thursdays, 11:00 AM - 12:20 PM
Natural History Building Room 2083

Labs: Thursdays, Section 1 @ 1:00 pm – 3:50 PM
Section 2 @ 4:00 PM – 6:50 PM
Natural History Building Room 3011

Learning Objectives

By the end of the course, students should be able to do the following:

- Explain major evolutionary trends of the mammalian radiation
- Describe the major characteristics that define mammals
- Critically discuss the ecology and conservation of major mammal groups
- Identify mammals living in and around Illinois
- Work effectively in a small team to critically analyze conservation issues
- Create and deliver a well-organized oral presentation
- Generate and revise a written report on mammals

Course Plan & Activities

Course Web Site

Course materials including lecture presentations will be posted on the Canvas course site. Lectures typically will be posted the day before class but may have some information omitted (e.g., when we will cover the information through in-class discussions).

Relevant Textbooks

- 1) Vaughan, T. A., J. M. Ryan, and N. J. Czaplewski. 2015. Mammalogy. 6th edition.
- 2) Reid, F. A. 2006. A Field Guide to Mammals of North America. 4th edition.
- 3) Elbroch, M. 2006. Animal skulls: A guide to north American species.

Extracurricular Readings

- 3) Yong, Ed. 2022. An Immense World. Random House.
- 4) Sacks, O. 1985. The man who mistook his wife for a hat. Summit Books.
- 5) Brusatte, S. 2022. The Rise and Reign of Mammals. Harper Collins.
- 6) Brusatte, S. 2018. The Rise and Fall of Dinosaurs. Harper Collins.

Assigning Final Course Grade

Lecture – Attendance	145 pts (29x5)
Lab – Systematics Exercises	140 pts (14x10)
Lecture – Essay Draft 1	100 pts
Lab – Quizzes	100 pts (4x25)
Lab – Practical Exams	100 pts (2x50)
Lecture – Essay Draft 2	100 pts
Lab – Group Conservation Critique	100 pts
Lecture – Final Essay	100 pts
TOTAL	885 pts

* Will use the A +/- grading system - Lab (440 pts) and Lecture (445 pts) on a total of 885 pts.

Assignments

There will be weekly lab exercises, four quizzes (not cumulative), two practical lab exams (not cumulative), a group presentation on mammal conservation, and a written essay that we will work on throughout the semester. See the Lecture and Lab Schedule below for dates.

General Lab Format

Please attend your assigned section, and if you need to miss a lab, contact your TA. Labs will consist of learning mammalian characteristics, mammalian orders, families, and species, and developing critical identification and research skills. In general, students will first take a quiz, and then have a student led review of last week's topic, followed by a short video (~40 min). Next, we will delve into a new group of mammals (~30 min), and complete a handout on systematics and adaptive learning review over the remainder of class time. We will also dedicate time in lab to work on group projects, and time permitting to also work on individual projects.

Field Trips

We will do one ecology field trip (September 9th and 10th), and one museum field trip, if possible (this is tentative). Both field trips are optional (but seriously fun!). The Field Ecology Trip (September 9th 1:00-5:00 and 10th 8:30-12:00): We will meet in the parking lot of Turner Hall both days to travel by university vans a short distance to University research property. We will focus on learning about camera traps, small mammal trapping, and meso-carnivore trapping. Please wear close-toed shoes, long pants, and weather appropriate gear. Please bring water and snacks if desired. There will be a port-a-potty on site.

Group Conservation Critique

Students will work in small groups to research and critically evaluate a conservation issue for a specific mammalian species or group. The results of these conservation critiques will then be presented to the class orally and with curated visual aid. More details on this activity will be provided in class.

Course Policies

Lab Policy

Use of smart phones is prohibited during the introductory presentation at the beginning of labs and for the first 30 minutes of self-paced time intended for working through the stations. After that, phones can be used to take photos of specimens to aid in studying or to research material relevant to the lab topics.

Attendance

I expect students to attend all lectures and labs. There will be no make-ups for exams or quizzes other than for documented illnesses or other reasons approved beforehand by the course instructor or TA. If you anticipate difficulties in attendance, please reach out and let me know as soon as possible to avoid unwanted delays in processing and accounting for your coursework!

Academic Integrity

The University of Illinois at Urbana-Champaign *Student Code* should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: <http://studentcode.illinois.edu/>. Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <http://studentcode.illinois.edu/>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

Request for Special Accommodations

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact me as soon as possible. To ensure that disability-related concerns are properly addressed from the beginning, students with disabilities who require assistance to participate in this class should contact Disability Resources and Educational Services (DRES) and see me as soon as possible. If you need accommodations for any sort of disability, please speak to me after class, or make an

appointment to see me, or see me during my office hours. Please note that accommodations begin when I receive your letter of request and is not retroactive to the beginning of the semester. DRES provides students with academic accommodations, access, and support services. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TDD), or e-mail a message to disability@uiuc.edu. <http://www.disability.illinois.edu/>.

Community of Care

As members of the Illinois community, we each have a responsibility to express care and concern for one another. If you come across a classmate whose behavior concerns you, whether in regards to their well-being or yours, we encourage you to refer this behavior to the Student Assistance Center (217-333-0050 or <http://odos.illinois.edu/community-of-care/referral/>). Based on your report, the staff in the Student Assistance Center reaches out to students to make sure they have the support they need to be healthy and safe. Further, we understand the impact that struggles with mental health can have on your experience at Illinois. Significant stress, strained relationships, anxiety, excessive worry, alcohol/drug problems, a loss of motivation, or problems with eating and/or sleeping can all interfere with optimal academic performance. We encourage all students to reach out to talk with someone, and we want to make sure you are aware that you can access mental health support at the Counseling Center (<https://counselingcenter.illinois.edu/>) or McKinley Health Center (<https://mckinley.illinois.edu/>). For mental health emergencies, you can call 911 or walk in to the Counseling Center, no appointment needed.

General Guidelines regarding COVID

Following University policy, all students are required to engage in appropriate behavior to protect the health and safety of the community. Students are also required to follow the campus COVID-19 protocols. Students who feel ill must not come to class. In addition, students who test positive for COVID-19 or have had an exposure that requires testing and/or quarantine must not attend class. The University will provide information to the instructor, in a manner that complies with privacy laws, about students in these latter categories. These students are judged to have excused absences for the class period and should contact the instructor via email about making up the work. Students who fail to abide by these rules will first be asked to comply; if they refuse, they will be required to leave the classroom immediately. If a student is asked to leave the classroom, the non-compliant student will be judged to have an unexcused absence and reported to the Office for Student Conflict Resolution for disciplinary action. Accumulation of non-compliance complaints against a student may result in dismissal from the University.

COVID: Regarding Face Coverings

All students, faculty, staff, and visitors are required to wear face coverings in classrooms and university spaces. This is in accordance with CDC guidance and University policy and expected in this class. Please refer to the University of Illinois Urbana-Champaign's COVID-19 website for [further information on face coverings](#). Thank you for respecting all of our well-being so we can learn and interact together productively.

COVID: Regarding Building Access

In order to implement COVID-19-related guidelines and policies affecting university operations, instructional faculty members may ask students in the classroom to show their Building Access Status in the Safer Illinois app or the Boarding Pass. Staff members may ask students in university offices to show their Building Access Status in the Safer Illinois app or the Boarding Pass. If the Building Access Status says “Granted,” that means the individual is compliant with the university’s COVID-19 policies—either with a university-approved COVID-19 vaccine or with the on-campus COVID-19 testing program for unvaccinated students. Students are required to show only the Building Access Screen, which shows compliance without specifying whether it was through COVID-19 vaccination or regular on-campus testing. To protect personal health information, this screen does not say if a person is vaccinated or not. Students are not required to show anyone the screen that displays their vaccination status. No university official, including faculty members, may ask students why they are not vaccinated or any other questions seeking personal health information.

Emergency Response Recommendations

Emergency response recommendations can be found at the following website:

<http://police.illinois.edu/emergency/>. I encourage you to review this website and the campus building floor plans website within the first 10 days of class. <http://police.illinois.edu/emergency/floorplans/> .

Family Educational Rights and Privacy Act (FERPA)

Any student who has suppressed their directory information pursuant to *Family Educational Rights and Privacy Act* (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See <http://registrar.illinois.edu/ferpa> for more information on FERPA.

Religious Observances

The Religious Observance Accommodation Request form is available

<https://odos.illinois.edu/community-of-care/resources/students/religious-observances/>. Submit the form to the instructor and to the Office of the Dean of Students (helpdean@illinois.edu) by the end of the second week of the course; in the case of exams or assignments scheduled after this period, students should submit the form to the instructor and to the Office of the Dean of Students as soon as possible.

Chosen Names at UIUC

If you want a chosen name to appear in academic portals, please follow the instructions here: https://www.uillinois.edu/about/policies/preferred_first_name_statement

If you would like a chosen first name to appear with a legal last name on your diploma, information will be included in graduation e-mails from the university. Be advised that in some situations, the name on the diploma may need to match your legal name.

Course Schedule

Date	Lecture	Readings	Group Critiques	Assignments	Lab
22-Aug-23	Course Mechanics & Mammal Diversity	Vaughan – Chapter 1			
24-Aug-23	Mammal Origins I	Vaughan – Chapter 2			Mammal Characteristics I
29-Aug-23	Mammal Origins II	Vaughan – Chapter 3			
31-Aug-23	Mammal Origins III	Vaughan – Chapter 4			Mammal Characteristics II
5-Sep-23	Cutaneous Sensation & Electroreception	Vaughan – Chapter 26			
7-Sep-23	Nat. Hist. – Monotremes & Marsupials	Vaughan – Chapter 5	Group 1	Quiz 1	Monotremes & Marsupials
Sep 9 & 10					*Ecology Field Trip
12-Sep-23	Chemical Senses: Gustation & Olfaction	Vaughan – Chapter 6			Afrotheria & Xenarthra
14-Sep-23	Nat. Hist. – Afrotheria & Xenarthra	Vaughan – Chapter 7		Paper - Draft 1 Due	
19-Sep-23	Mechanical: Proprioception & Movement	Vaughan – Chapter 8			Scandentia, Dermoptera, Primates
21-Sep-23	Nat. Hist. – Scandentia, Dermoptera, Primates	Vaughan – Chapter 11	Group 2	Quiz 2	
26-Sep-23	Mechanical: Auditory Sensation	Vaughan – Chapter 12			Lagomorpha, Rodentia I
28-Sep-23	Nat. Hist. – Lagomorpha & Rodentia I	Vaughan – Chapter 13			
3-Oct-23	Nat. Hist. – Rodentia II	Vaughan – Chapter 2			Review
5-Oct-23	Mechanical: Echolocation (water)	Bruck & Pack, 2022	Group 3	Review	
10-Oct-23	Mechanical: Echolocation (air)	Vaughan – Chapter 26			Practical
12-Oct-23	Mechanical: Visual Sensation	Vaughan – Chapter 9		Practical 1	
17-Oct-23	Reproduction	Vaughan – Chapter 20			Rodentia II
19-Oct-23	Nat. Hist. – Carnivora, Pholidota	Vaughan – Chapter 10	Group 4		
24-Oct-23	Social Systems	Vaughan – Chapter 14			Soricomorpha, Erinaceomorpha
26-Oct-23	Nat. Hist. – Soricomorpha, Erinaceomorpha	Vaughan – Chapter 15		Paper - Draft 2 Due	
31-Oct-23	Physiology	Vaughan – Chapter 21			Chiroptera
2-Nov-23	Nat. Hist. – Chiroptera	Vaughan – Chapter 22	Group 5	Quiz 3	
7-Nov-23	Population Cycles	Vaughan – Chapter 16			Carnivora, Pholidota
9-Nov-23	Guest Lecture - Conservation Genetics	Vaughan – Chapter 17			

14-Nov-23	Guest Lecture - Chiroptera	Vaughan – Chapter 18			Cetartiodactyla & Perissodactyla
16-Nov-23	Nat. Hist. – Cetartiodactyla & Perissodactyla	Vaughan – Chapter 19	Group 6	Quiz 4	
21-Nov-23	Thanksgiving Break				
23-Nov-23	Thanksgiving Break				
28-Nov-23	Domestication	Vaughan – Chapter 27			Practical
30-Nov-23	Human Evolution I	Vaughan – Chapter 23	Group 7	Practical 2	
Dec 2 & 3					*Museum Field Trip
5-Dec-23	Human Evolution II	Vaughan – Chapter 24			
7-Dec-23	Finals		Finals		Finals
12-Dec-23	Finals				
14-Dec-23	Finals		Finals	Paper – Final Due	Finals

***** Final Paper Due December 14th 2023 @ 1:00 am *****