



## **Mammalogy FW 444/544 Fall 2014 Syllabus**

Lectures: M & W 12:25-1:15, 1216 Jordan II (JOR)

Lab: M 1:15-4:30, 2214 Jordon II (JOR) or alternative locations

**Instructor:** Dr. Roland Kays  
NC Museum of Natural Sciences & Jordan 3118  
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**Teaching Assistant:** John Hastings <jmhastin@ncsu.edu>, Lydia Fraser (Undergraduate)  
**Also Helping:** Ben Hess, bmhess@ncsu.edu

**Course Credit:** 3

**Course prerequisites:** at least one previous class in natural history, ecology, conservation or evolution strongly recommended.

### **Course Textbooks & Equipment:**

1. Any North American Mammal field guide - book or smart phone app (Recommended = Mammals of North America by Kays and Wilson, Princeton University Press \$5-20).
2. GPS - each student will need a GPS, we recommend the MotionX-GPS Smartphone App (don't get the driving version) \$1-\$100.

### **Course Objectives:**

- 1) Students are able to name the local mammal fauna and describe their basic ecology.
- 2) Students gain perspective on global mammal diversity and evolutionary history.
- 3) Students gain new insight into broader ecology and evolutionary concepts through mammalian examples.
- 4) Students are able to discuss and analyze real-world situations related to animal ethics and conservation through mammalian examples.
- 5) Students get hands on experience with a variety of mammal research techniques.
- 6) Students get views of various careers in Mammalogy by meeting professionals in person.

### **Out of Town Field Trips:**

Students must go on at least one of these, you may go on both (depending on space). Students are responsible for some food related costs during these trips.

1. Mountain field work (3 days)
2. Smithsonian National Museum of Natural History & Conservation Research Center (2 days)

### **Assignments: (1000 total points possible)**

1. Field research project with camera traps (350). Each student sets one camera, two different places. You will work in groups to analyze data, write an abstract of results, and present a final oral report. Graduate students will also prepare a full written report. 300 total points as follows: data collection 50 (graded on setting camera correctly, getting data uploaded on time, using identifying and counting animals carefully), abstract 1st draft 50, abstract final 100, presentation 150.
2. Scientific Bibliography (50pts): 10 references on a topic we provide. Must be in format for the Journal Ecology, and include only peer review journals and academic books.
3. Five one-page essays summarizing each guest lecture and how their topic relates to you personally. Or, ask a good question at the end and get out of the writing. (20 pts each x5 = 100, due 1 week later in lecture)
4. Oral test on your expertise in one mammal group (50). Pick one genus/family/order and learn about their: taxonomy, phylogeny, diet, locomotion, conservation (10 pts each).
5. Lab Practical: mid term and final (125 + 125 = 250)
6. Lecture Exams: mid term and final (100 + 100 = 200)

## **Expected Lecture Topics**

### Intro

1. Intro to Mammalogy

### Management and conservation

2. Ethics and mammals
3. Predation and human hunting
4. Mammals and climate change
5. Bones [Ben Hess]
6. Guest Lecture on Conservation Policy [Dr. Susan Lieberman]
7. Guest Lecture Management [Dr. David Cobb]
8. Guest Lecture Conservation and the public [Dr. Luke Dollar]

### Evolution

9. Origin and evolution of the Mammalia
10. Guest Lecture Elephant Evolution- [Stephanie Schuttler]
11. Modern evolutionary change of mammals
12. Ape and human evolution
13. Environmental Adaptations, physiology, thermoregulation etc... [Ben Hess]
14. Genomics

### Anatomy physiology

15. Reproduction [Scott Robertson]
16. Sensory systems
17. Digestive system & microbiome

### Ecology & Behavior

18. Population regulation: top down vs. bottom up
19. Disease ecology
20. Ecological roles of mammals
21. Ecological Roles
22. Distribution modeling & spatial ecology
23. Isotope Ecology
24. Science Communication
25. Social behavior
26. Domestication (Roger?)

Arielle: Mark/recapture, SD making, marsupials/monotremes

Lisa - Bats

Ben - Shrews

### Guest Instructors

- Dr. David Cobb, Chief, Division of Wildlife Management, N.C. Wildlife Resources Commission
- Dr. Luke Dollar, National Geographic Big Cats Initiative
- Dr. Stephanie Schuttler, NC Museum of Natural Sciences & NCSU Post Doc
- Ben Hess, Mammal Collection Manager, NC Museum of Natural Sciences & NCSU Graduate Student.
- Scott Robertson, NCSU Graduate Student
- Dr. Roger Powell, NCSU Mammalogist (semi-retired)
- Dr. Michael Stoskopf, NCSU Vet Professor
- Dr. Suzanne Kennedy-Stoskopf, NCSU Vet Professor

Course Schedule (subject to change with appropriate notification to students)

<b>August</b>	<b>Lecture</b> (1216 Jordan II)	<b>Lab</b> (2214 Jordon II or alternative)
Wed 19	Lecture 1 - intro	
Mon 24	Lecture 2 - Ethics	Lab 1. Field Techniques, Outside on campus, bring GPS
Wed 26	Lecture 3 - Hunting	
Mon 31	Lecture 5 - Bones [Ben Hess]	Lab 3. Skeletons, Jordan
<b>September</b>		
Wed 2	Lecture 4 - Climate Change	
Mon 7	<i>Labor day - no class</i>	
Wed 9	Lecture 6 - Conservation Policy [Dr. Susan Lieberman]	
Mon 14(Vans)	Lecture 7 - Wildlife Management in NC [Dr. David Cobb, given at Museum.]	Lab 4. Museum & specimen prep, NC Museum of Natural Science
Wed 16	Lecture 8 - the Big Cat Initiative [Dr. Luke Dollar]	
Mon 21	Lecture 9 - Mammal Origins	Lab 5. Skulls, Jordan (Bibliography's due)
Wed 23	Lecture 10 - Elephant Evolution [Dr. Stephanie Schuttler]	
Mon 28	Lecture 11 - Recent Evolution	Lab 6. Local Mammals 1, Jordan
Wed 30	Lecture 12 - Human Evolution	
<b>October</b>		
<i>Fri 3rd - Sun 5th (Vans)</i>	<i>Field Trip</i>	<i>Smokies</i>
Mon 5	Mid Term Lecture Exam	Lab 7. Local Mammals 2, Jordan
Wed 7	Lecture 13 - Environmental Adaptations [Ben Hess]	
Mon 12	Lecture 15 - Reproduction [Scott Robertson]	Lab 8. Practice test and open review lab, Jordan
Wed 14	Lecture 14 - Genomics	
Mon 19	Lecture 16 - Sensory Systems	Lab 9. Lab Mid Term test, Jordan
Wed 21	Lecture 17 - Digestion & Microbiome	
Mon 26	Lecture 18 - Population Regulation	Lab 10. Global Mammals 1, Jordan Lab
Wed 28	Lecture 19 - Disease Ecology (bats)	
<b>November</b>		
Mon 2(Vans)	Lecture 20 - Ecological Roles	Lab 11. Necropsy Lab, Vet School
Wed 4	Lecture 21 - Distributions & spatial ecology	
<i>Fri 7-Sat 8 (Vans)</i>	<i>Field Trip</i>	<i>Smithsonian</i>
Mon 9	Lecture 22 - Isotope Ecology	Lab 12. Research Study Design & Question Formulation
Wed 11	Lecture 23 - Science Communication (with Brian Mallow)	
Mon 16	Lecture 24 - Social Behavior	Lab 13. Camera trap data workup
Wed 18	Lecture 25 - Pikas and climate	

	change	
Mon 23	Research Presentations	Lab 14. Presentations on mammal families
Wed 25	Thanksgiving, no class	
Mon 30	Research Presentations	Lab 15: final Lab Test
<b>December</b>		
Wed 2	Final lecture exam	

**Dead animal policy:** Some activities in this class involve handling dead animals. If you are not comfortable with this you probably shouldn't take the class. If you want to stick with the class and skip particular dead-animal activities you should expect to do a fair amount of extra writing assignments in place of this work.

**Academic Integrity:** Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at <http://policies.ncsu.edu/policy/pol-11-35-01> All writing assignments will be checked for plagiarism.

**Academic Honesty:** See <http://policies.ncsu.edu/policy/pol-11-35-01> for a detailed explanation of academic honesty.

**Honor Pledge:** Your signature on any test or assignment indicates "I have neither given nor received unauthorized aid on this test or assignment."

**General Education Program (GEP) Information**

This course does not fulfill a General Education Program category.

This course does not fulfill a General Education Program co-requisite.

**Transportation:** Transportation will be provided by the class for off site labs and field trips.

**Safety & Risk Assumptions:** The course includes outside field work with inherent risks associated with working in the woods, walking on and off trails, and interacting with native North Carolinian wildlife and insects.

**Grade Components: Letter Grades:** This Course uses Standard NCSU Letter Grading

**Policies on Incomplete Grades:** If an extended deadline is not authorized by the instructor or department, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at <http://policies.ncsu.edu/regulation/reg-02-50-3>.

**Electronically-Hosted Course Components:** This course may involve electronic sharing or posting of personally identifiable student work or other information with persons not taking or administering the course. Students will be asked to sign a consent allowing disclosure of their personally identifiable work. No student is required to sign the consent as a condition of taking the course. If a student does not want to sign the consent, he or she has the right to ask the instructor for an alternative, private means of completing the coursework

**Attendance Policy:** Students are expected to attend all classes and lab on time. However, attendance will not be recorded. For specific information, see the NC State University attendance policy at [http://www.ncsu.edu/policies/academic\\_affairs/courses\\_undergrad/REG02.20.3.php](http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.3.php)

**Accommodations for Disabilities:**

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, student must register with the Disability Services Office (<http://www.ncsu.edu/dso>), 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation at <http://policies.ncsu.edu/regulation/reg-02-20-01>.

**Non-Discrimination Policy:** NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to

maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at <http://policies.ncsu.edu/policy/pol-04-25-05> or [http://www.ncsu.edu/equal\\_op/](http://www.ncsu.edu/equal_op/). Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.