

VERTEBRATE ZOOLOGY (BIO 353)

Spring 2019

MW 8:45-10:00 AM, 207 Payson Smith

Lab: M 11:45-3:35 PM, 160 Science

INSTRUCTOR: Dr. Chris Maher

EMAIL: cmaher@maine.edu

OFFICE LOCATION: 201 Science (A Wing) or 178 Science (CSTH Dean's office, C Wing)

OFFICE PHONE: 207.780.4612; 207.780.4377

OFFICE HOURS: T 12:00 – 1:00 PM, W 10:00 AM – 12:00 PM, or by appointment
I usually hold office hours in 201 Science; however, if plans change, I leave a note on the door, and you probably can find me in 178 Science. Office hours are subject to change due to my meeting schedule, and I try to notify you in advance.

COURSE DESCRIPTION: Vertebrate Zoology is an upper division biology elective in Area 1 (Organismal Biology) that surveys major groups of vertebrates. We examine many aspects of vertebrate biology, including physiology, anatomy, morphology, ecology, behavior, evolution, and conservation. This course also includes a laboratory component, the primary focus of which will be a survey of vertebrates at a local natural area. As much as possible, we will spend time in the field, learning survey techniques and identifying vertebrates.

This syllabus is intended as a guide for the semester; however, I reserve the right to make changes in topics or schedules as necessary.

COURSE PREREQUISITES: You must have successfully completed (i.e., grade of C- or higher) Biological Principles III (BIO 109). Although not required, courses in evolution (BIO 217), ecology (e.g., BIO 203), and animal physiology (e.g., BIO 401) should prove helpful.

LEARNING OUTCOMES: Upon successfully completing this course, you should be able to:

1. explain major concepts of the biology of vertebrates, including physiological, morphological, and behavioral adaptations; ecology; and evolutionary relationships;
2. apply some of these concepts to an understanding of local vertebrates;
3. discuss reasons for vertebrates' overwhelming success;
4. identify and classify vertebrates that you are likely to encounter, i.e., Maine species;
5. associate vertebrate species with their natural habitats;
6. use proper techniques for capturing live vertebrates; and
7. communicate ideas to others more effectively in written and spoken form.

REQUIRED TEXTS:

Alden, P. and Cassie, B. 1998. *National Audubon Society field guide to New England*. Knopf, New York.

Pough, F. H. and Janis, C. M. 2018. *Vertebrate Life*. 10th ed. Sinauer Associates, New York.

OTHER REQUIRED EQUIPMENT: We spend as much lab time as possible at the study site. On field days, you need to arrive *prepared to be outdoors for several hours*, often in cold, windy conditions. Dress warmly and in layers! Bring more clothes than you think you need. You can always shed unneeded layers, but you cannot put on layers you did not bring. In particular, you should have a hat and gloves or mittens. Hand warmers can be quite nice, and you can tuck them into your gloves or mittens. In addition, trail conditions will change over the semester. You should have sturdy, warm footwear (e.g., hiking boots), preferably waterproof for your comfort.

Furthermore, traction devices such as microspikes or Yaktrax can make your life much easier when surfaces are icy. Finally, I recommend bringing food and water or a hot beverage to maintain energy levels and to stay hydrated.

ASSESSMENT:

1. Exams: To assess learning outcomes 1, 2, 3, and 7, I administer 3 exams during the semester. Each exam covers material from lecture and the reading assignments, and it consists of short answer and essay questions. You will be tested on basic information, understanding of concepts, and application of those concepts to new situations. You cannot just memorize the information we cover and expect to repeat it back to me on paper. To do well, you must *understand* the concepts and material you learn because I ask you to demonstrate a deeper level of understanding that I hope persists after the course ends (i.e., details are soon forgotten).

This type of understanding often is a new experience for students, and it can be frustrating. I am willing to help you to make the transition from memorization styles of learning to comprehension of ideas, so please visit me. In addition, you can find valuable information on the Learning Commons website: <https://usm.maine.edu/learningcommons>. See items listed under “Ace your Courses” in the navigation menu. More resources are available at the Agile website: <https://usm.maine.edu/agile!>

The third exam is given during finals week, and it is not comprehensive.

2. In-class writing tasks: Periodically during the semester, I ask you to write a brief answer to a question I pose, which provides an additional way to assess your understanding of the course material and reinforce that content. The question may be related to material discussed in class or to reading assignments. Questions may be somewhat “factual,” but they also may require you to integrate and synthesize information you are learning. I will drop your two lowest scores on these assignments. If you miss a class at which you receive a writing task, you may count that assignment as one of your dropped scores.

3. Laboratory: The primary lab assignment for the semester is to conduct a field survey of vertebrates at a local natural area. Throughout the semester, we use different techniques to survey particular taxa. We capture individuals, collect data from them, and release them alive and unharmed at their points of capture. Thus, you spend much of this time (4 hours per week) surveying and identifying animals in the field. On days that we cannot be in the field due to weather conditions, we complete assignments in the lab.

In the laboratory component of the course, you are evaluated on the following:

a) *Identification quizzes*: To assess learning outcomes 4 and 5, I administer periodic quizzes that require you to identify animals that we observe. Questions may include common name, scientific name, taxonomic information (e.g., family, order), sex, and basic natural history (e.g., diet, habitat).

b) *Other assignments*: If we meet in lab, I provide exercises that you complete. These assignments reinforce material from class, and they help to meet learning outcomes 1, 2, and 3.

b) *Field survey report and presentation*: To assess learning outcomes 2, 4, and 7, at the end of the semester, you submit a jointly written report to the local organization whose property we survey. Furthermore, you present the results of the survey to staff of the organization. I provide more information about these assignments in lab.

c) *Participation*: As with any lab, the more effort you put into the exercises, the more you learn. Furthermore, you work as a member of a team to conduct the field survey, and all team members are expected to contribute fully. I monitor participation carefully to determine level of effort.

GRADE DETERMINATION:

Exams (3 @ 15%)	45%
In class writing tasks	15%
Laboratory	
Identification quizzes and assignments	5%
Survey report	15%
Survey presentation	10%
Participation	10%
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TOTAL	100%

Grades are curved as follows: I convert all scores into a percentage based on the above information. Then I use the highest number of points earned in the course as an indication of the best that students could do, and I curve from there, using the scale shown below. **EXAMPLE:** Suppose the highest number of points earned is 95 out of 100 points. The cutoff for an A- would be 90% of 95 points, or 85.5 points. Likewise, the lowest B would be 76 points, the lowest C would be 66.5 points, and the lowest D would be 57 points. If you want to know your grade at any point during the semester, see me during office hours.

93–100% of highest grade	A	73–76.9	C
90–92.9	A–	70–72.9	C–
87–89.9	B+	67–69.9	D+
83–86.9	B	63–66.9	D
80–82.9	B–	60–62.9	D–
77–79.9	C+	<60	F

COURSE EVALUATIONS: At the end of each semester, every student has the opportunity to provide constructive feedback on the course. Please take the time to let me know your thoughts about the course. Your feedback is valuable and important to me, and I use your comments to make improvements in course materials, assignments, and learning outcomes.

COURSE POLICIES

EXPECTATIONS: Because BIO 353 is an upper division course in biology, I expect you to accept a greater share of the responsibility for learning than you perhaps would do in an introductory course. This course carries 5 credits, so you are expected to commit 10-15 hours each week, *in addition to the scheduled class meeting time*, to this course. To achieve course objectives, you must take an active role in learning. You must arrive prepared for the day's events, which means you have read assignments prior to class and you are prepared to discuss material. I expect to engage you in discussion and to guide you through the material. In addition, the field survey requires additional time beyond the normal lab meeting time each week.

ATTENDANCE POLICY: I consider college students to be adults and thus responsible for making their own decisions about attending class. Therefore, I do not maintain attendance records. However, we discuss a great deal of material during each class period, and most students find it difficult to make up missed classes, even when they copy a classmate's notes. By their nature, field labs are virtually impossible to make up. Therefore, if you want to do well in this course, then you should prepare and participate in activities and discussions.

CLASS CANCELLATION: In the event that I must cancel class suddenly for some reason, I will post an announcement on Blackboard and notify you via email.

CLASS CANCELLATION/ATTENDANCE DUE TO INCLEMENT WEATHER: Occasionally, USM will close the University due to inclement weather. When the cancellation is scheduled for an entire day, the class content will be made up at another time or through additional, outside of class, assignments.

When the school opens late or closes early, and the time selected is during the middle of class, we will still hold the class unless you are otherwise notified by me. I will post an announcement on Blackboard and send an email. Two examples:

- If class starts at 11:45 AM, and the University is closing at 1 PM, we will still have class unless you hear from me.
- If class starts at 11:45 AM, and the University is opening at 1 PM, we will still have class unless you hear from me.

MAKEUP EXAM POLICY: Missed exams cannot be made up except under unusual circumstances; you must notify me of any excuse, due to illness or other situation, *before* the exam. At my discretion, makeup exams may be oral exams, and they cover the same material as the original written exam. You must take the makeup exam no later than one week after the scheduled written exam. You cannot make up the exam scheduled during finals week.

EXAM REGRADE POLICY: If you believe I graded you unfairly on a question, you should provide a written statement clearly explaining why you believe you deserve more credit for an answer. The statement, along with the exam, must be returned to me no later than one week after I return the exam. I will reevaluate your answers and provide you with my decision promptly.

TECHNOLOGY IN THE CLASSROOM: With increased use of laptops in classrooms, we also see an increase in the inappropriate use of devices during class. I do not wish to punish students who want to use laptops legitimately, i.e., to take notes during class. However, to avoid distractions and to keep students focused on the class, I impose the following rules:

1. Students may use computers only to take notes and not for any other purpose.
2. To avoid distractions, students must mute their computers.

3. Students who wish to use laptops during class must sit in the front 1-2 rows. Failure to comply with these rules may result in a ban on laptop use. In addition, students may not use electronic devices (e.g., cell phone, smart phone, tablet, iPod, PDA, MP3 player, pager) during class to access email, instant messages, the Internet, or to send or receive text messages. Please turn off all cell phones and other similar devices prior to the start of class unless I have granted permission in advance to leave them on.

ACADEMIC INTEGRITY: Everyone associated with the University of Southern Maine is expected to adhere to the principles of academic integrity central to the academic function of the University. Any breach of academic integrity represents a serious offense. Each student has a responsibility to know the standards of conduct and expectations of academic integrity that apply to academic tasks. Violations of academic integrity include any actions that attempt to promote or enhance the academic standing of any student by dishonest means. Cheating on an examination, stealing the words or ideas of another (i.e., plagiarism), making statements known to be false or misleading, falsifying the results of one's research, improperly using library materials or computer files, or altering or forging academic records are examples of violations of this policy that are contrary to the academic purposes for which the University exists. Acts that violate academic integrity disrupt the educational process and are not acceptable.

Evidence of a violation of the academic integrity policy normally will result in disciplinary action. A copy of the complete policy may be obtained from the office of Community Standards and Mediation, online at usm.maine.edu/community-standards-mediation/academic-integrity, or by calling and requesting a copy at 207.780.5242.

UNIVERSITY POLICIES AND RESOURCES

DISABILITY ACCOMMODATIONS: The university is committed to providing students with documented disabilities equal access to all university programs and services. If you think you have a disability and would like to request accommodations, you must register with the Disability Services Center. Timely notification is essential. The Disability Services Center can be reached at 207.780.4706 or dscusm@maine.edu. If you already have received an accommodation letter from the Disability Services Center, then please provide me with that information as soon as possible. Please make a private appointment so we can review your accommodations.

COUNSELING: Counseling is available at USM. The best way to schedule an appointment is by calling 780.5411. More information is available at <https://usm.maine.edu/uhcs>.

NONDISCRIMINATION POLICY: The University of Southern Maine is an EEO/AA employer and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran's status in employment, education, and all other programs and activities. The following person has been designated to handle inquiries regarding non-discrimination policies: Sarah E. Harebo, Director of Equal Opportunity, 101 North Stevens Hall, University of Maine, Orono, ME 04469-5754, 207.581.1226, TTY 711 (Maine Relay System).

STATEMENT ON RELIGIOUS OBSERVANCE FOR USM STUDENTS: Absence for Religious Holy Days: The University of Southern Maine respects the religious beliefs of all members of the community, affirms their rights to observe significant religious holy days, and will make reasonable accommodations, upon request, for such observances. If a student's religious observance is in conflict with the academic experience, the student should inform their instructor(s) of the class or other school functions that will be affected. It is the student's responsibility to make the necessary arrangements mutually agreed upon with the instructor(s).

TITLE IX STATEMENT: The University of Southern Maine is committed to making our campuses safer places for students. Because of this commitment and our federal obligations, faculty and other employees are considered mandated reporters when it comes to experiences of interpersonal violence (sexual assault, sexual harassment, dating or domestic violence, and stalking). Disclosures of interpersonal violence must be passed along to the University's Deputy Title IX Coordinator who can help to provide support and academic remedies for students who have been impacted. More information can be found online at <http://usm.maine.edu/campus-safety-project> or by contacting Sarah E. Holmes at sarah.e.holmes1@maine.edu or 207.780.5767.

If students want to speak with someone confidentially, the following resources are available on and off campus: University Counseling Services (207.780.4050); 24 Hour Sexual Assault Hotline (800.871.7741); 24 Hour Domestic Violence Hotline (866.834.4357).

COURSE SCHEDULE AND ASSIGNMENTS

Week	Topic	Reading assignment	Lab topic
21 Jan	Introduction; Classification	Chapter 1	
28 Jan	Origins; Jawless fishes	Chapters 2, 3	IACUC training (LAB)
4 Feb	Gnathostomes; Jawed fishes	Chapters 3, 4, 6	Introduction to study site
11 Feb	Jawed fishes	Chapters 6, 7, 8, 9	Field survey (birds)
18 Feb	M, 18 Feb – Holiday; Jawed fishes	Chapters 8, 9	No class
25 Feb	* M, 25 Feb – Exam 1; Tetrapods	Chapter 10 (pp. 161-172)	Field survey (birds, mammals)
4 Mar	Tetrapods; Amphibians	Chapters 11, 12	Field survey (birds, mammals)
11 Mar	Amphibians; Amniotes	Chapters 11, 10 (pp. 172-179)	Field survey (birds, mammals)
18 Mar	Spring Break		No class
25 Mar	Turtles; Lepidososaurs	Chapters 16, 17	Field survey (birds, mammals)
1 Apr	* M, 1 Apr – Exam 2; Crocodilians	Chapter 18	Field survey (birds, mammals)
8 Apr	Birds	Chapters 21, 22	Field survey (herps, fishes, mammal trapping); Report outline due
15 Apr	Birds	Chapter 22	Field survey (herps, fishes, mammal trapping); Draft due
22 Apr	Mammals	Chapters 24, 25	Finalize report and presentation
29 Apr	Mammals	Chapter 25	Final presentation; field survey report due
6 May	* W, 8 May – Exam 3: 8:00-10:00 AM		