

Syllabus

Biology 544, Ornithology, Spring 2023

4 credits

Instructor:

<PROF_FULL_NAME>, <PROF_EMAIL>

216A Morrill

Office/review hours:

Thursday 4:00-5:00 on Zoom or by appointment (make appointments on Navigate at <https://umass.campus.eab.com>, choose "professor office hours").

Course goals:

This course is intended to provide an introduction to the evolution, ecology and behavior of birds. The lecture portion of the course will focus on the key concepts and questions that drive research in these areas. I will emphasize the investigative and analytical approaches with which ornithologists approach these concepts and questions. In lab, the focus will be on the morphological and physiological adaptations of birds, on field identification of birds by sight and sound, and on collecting and analyzing data. Overall, I hope that Biology 544 will provide you with a sound foundation for future explorations of avian biology.

See the end of this document for course learning objectives

Required text:

Gill and Prum. 2019. *Ornithology*, 4th edition. W. H. Freeman and Company.

The Gill text will be the primary source of reading for the course, but I will also regularly assign supplementary readings.

You will also need binoculars and a field guide. See the lab syllabus for field guide recommendations. For binoculars, you are not required to buy a pair just for the course (though every biologist should own binoculars, and this might be a good opportunity to get your pair). However, if someone in your family has some binoculars that you could borrow for the semester, that would be very useful for you. Otherwise, we have some binoculars that you can borrow to use in lab.

Lab:

This course includes a required laboratory section, which meets once per week for three hours. The lab sections will be taught by <TA_FULL_NAME>. Labs begin on February 8.

Reading notes:

Please take and turn in notes on all required readings. These study notes are due prior to class on the date that a reading is due for completion. Grades for notes turned in up to 24 hours after the deadline will be reduced by 50%. Grades for notes turned in more than 24 hours after the

deadline will be reduced by 75%. No exceptions.

For *textbook readings*, organize your notes by sections within the chapter. For each section heading and each box in the chapter, write down the heading title and beneath it write a summary of the main points of the section or box.

For *popular-press (i.e., not peer reviewed) articles*, write a list of the main points of the article and briefly explain each point.

For *peer-reviewed research articles*, write short answers to the following questions: 1) What question were the researchers trying to answer? 2) What, exactly, did the researchers do to try to answer their question? 3) What, exactly, did the researchers find (i.e., what were their data)? 4) What do the researchers think that their findings mean (i.e. how do they interpret their findings)

Exams:

We will have three exams:

Exam 1 - Monday, March 27

Exam 2 - Monday, April 24

Exam 3 (not cumulative) - During the final exam period, date TBA.

(You'll also have lab quizzes and exams; <TA_FIRST_NAME> will give the details on these in your lab section).

Exams will be timed, but will be available during an extended time window on exam day. Most exam questions will be open format "thought questions" that require you to integrate the concepts and information that you have acquired and to explain your reasoning. You may be asked to apply the concepts you've learned to new problems that were not explicitly covered in class. Exams are open-book.

Grading:

Your final grade will be based on the following apportionment.

35% Laboratory

5% Reading notes

20% Exam 1

20% Exam 2

20% Exam 3

Academic honesty:

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the

University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent. Please see the following for more information:

https://www.umass.edu/honesty/sites/default/files/pdf/new_ah_guide_for_students.pdf
http://www.umass.edu/honesty/sites/default/files/pdf/academic_honesty_policy.pdf

Disability Statement:

The University of Massachusetts Amherst is committed to making reasonable, effective, and appropriate accommodations to meet the needs of students with disabilities and help create a barrier-free campus. If you are in need of accommodation for a documented disability, register with Disability Services. An accommodation letter will be sent to your faculty. It is your responsibility to initiate these services and to communicate with faculty ahead of time to manage accommodations in a timely manner. For more information consult the Disability Services website at <http://www.umass.edu/disability/>

Lecture topics:

Evolutionary origins of birds and flight

Early birds, flightlessness

Systematics and classification

Speciation, adaptive radiation

Flight

Migration

Navigation

Spacing: territoriality, flocks, colonies

Foraging and feeding

Mating systems, including parental care, helping at the nest, brood parasitism

Communication, visual and vocal

Conservation

Learning objectives

By the end of the semester, you will be able to:

1. Understand current knowledge of the origin and evolution of birds.
2. Understand hypotheses about the origin of flight and how the hypotheses inform ideas about bird origins.
3. Understand hypotheses about the origin of flight and how the hypotheses inform ideas about bird origins.
4. Understand why flightlessness has arisen repeatedly in bird evolution.
5. Understand the key findings of avian systematics.
6. Understand speciation in birds
7. Understand the principles that help explain how birds fly.
8. Understand why bird wing-shapes vary among species.
9. Appreciate the diversity of bird migration patterns
10. Understand what is known about how birds navigate
11. Understand the main components of the annual cycle of birds.
12. Appreciate the diversity of spacing behavior in birds.
13. Understand key concepts and explanations of territoriality, colonies, and flocks.
14. Appreciate the diversity of mating systems in birds, including monogamy, polygyny, polyandry, promiscuity, and cooperative breeding
15. Understand some of the ecological and evolutionary factors that influence avian mating systems.
16. Understand cooperative breeding and its evolution.
17. Understand brood parasitism and its evolution.
18. Develop a working definition of communication.
19. Appreciate the diversity and complexity of avian vocalizations.
20. Understand how oscine singing behavior develops.
21. Understand findings about the function and use of songs.
22. Understand how oscine singing behavior develops.
23. Understand the role of male-male competition and female mate choice in the evolution of visual signals in birds.

24. Discuss and consider issues in bird conservation

25. Name and describe some extinct and near-extinct bird species.