

Ornithology BIOL 437 and 537

Spring 2020

Professor: Dr. Luther
Office: 1216 Exploratory Hall
Email: dluther@gmu.edu
Office Hours: Tuesday 1:00-3:30pm and 3:30-4:30pm

Laboratory Instructor: Mr. Shawn Smith
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Lecture: Friday 1:30-4:10 Peterson 2408

Lab: Friday 9:00-11:45 EXPL L509

However, most weeks for the laboratory section we will go on field trips and meet at the site of the field trip. Directions to the locations will be emailed earlier in the week.

I. COURSE AIM AND OBJECTIVES

LECTURE Students will learn the basic principles of ornithology and how they relate to the disciplines of ecology, behavior, evolution, physiology, and conservation biology. In addition, students will read and report on scientific studies in the primary literature for a greater understanding of the scientific research on birds, data analysis, hypothesis testing, and the scientific process.

LAB Students will be taught how to identify birds by sight and sound, with an emphasis on birds of the eastern United States. Students will also be exposed to field skills that are used to quantify avian richness, abundance, behavior and population density, as well as experimental design for testing hypotheses related to avian life history traits.

II. COURSE CONTENT

Ornithology BIO 537 will focus on the ecology, evolution, physiology, behavior and conservation of birds. The classroom section of this course will be split among lectures by the professor, guest lecturers and oral presentations by the students. The laboratory section of the course will focus on the identification and behavior of birds in Northern Virginia. We will meet Friday mornings for bird watching field trips and laboratory exercises that focus on bird identification and avian ecology.

III. COURSE MATERIALS

There is no assigned textbook for the lecture portion of the course. Instead we will be reading articles from the primary literature. You are expected to read all assigned material before attending class.

For the laboratory portion of the course you are required to buy your own field guide for the lab (I recommend National Geographic or Peterson Birds of North America).

IV. GRADING PROCEDURES AND ASSIGNMENTS

Grades

- 100pts 20% written paper
- 100pts 20% oral presentation
- 100pts 20% laboratory assignments
- 50pts 10% laboratory final exam
- 125pts 25% weekly homework
- 25pts 5% classroom participation

500pts Total

Grade Breakdown

POINTS	PERCENT	GRADES
490-500	98 - 100%	A+
450-489	90- 97%	A
440-449	88- 89%	B+
400-439	80-87%	B
390-399	78-79%	C+
350-389	70-77%	C
300-349	60-69%	D
0-299	0-59%	F

Lecture class structure:

- Luther lecture 45-60 min.
- Guest lecture 30-45 min.,
- Student led presentations / seminar-like discussion 30 min

Written paper:

For the written paper you will select one of the research questions, see word doc on blackboard, and develop hypotheses and predictions for the selected question. You will write a paper based on what you find in the literature to support or refute your hypotheses and predictions. The paper should be 6 pages double spaced, 1-inch margins, with at least 10 references (none of which are websites). The paper will be due on April 24th. No extensions will be accepted.

Oral presentation:

Students will give an oral presentation on an avian group chosen during the first week of class. For the oral presentation, you will search the primary literature to give an overview of the chosen group as well as a detailed analysis of the gaps in knowledge surrounding the group and importance of studies on the group to other disciplines (if any). Students will also choose 1 paper from the primary literature that they will email to the whole class to read in preparation of the class discussion that follows the oral presentation.

You will prepare a 10 minute PowerPoint presentation (ppt) on your chosen topic. You will also provide a ½ - 1 page summary of the topic and a list of references as a handout to give to the class on the day of your presentation. One week prior to your presentation you will email 1 journal article to the whole class for them to read before your presentation. After your presentation is complete you will lead the class in a discussion of the topic that focuses on your ppt but also the 1 article that you assigned.

A successful presentation will begin with a big picture introduction to the group and associated insights to ornithology, ecology, behavior, or conservation based on studies of this group. The introduction will include definitions of terms and important concepts. Next the presentation will specifically discuss the group and give an analytical summary of what is known about the group as well as what is not known about the group. Finally, the presentation will summarize the paper that the presenter assigned. Topics of a good presentation could include: the number of genera and species, biogeographical location, habitat preferences, specific morphological, physiological, or behavioral adaptations to the group, mating system, conservation status, and more depending on what is known about the group.

Laboratory assignments:

The laboratory assignments and grade will be comprised of three types of assignments. 1 Notes on behavior and identification of species observed during the laboratory field trips. 2 Nest predation experiment and report. 3 The final exam will be a field test of bird identification by sight and sound.

Labs:

Dress appropriately for walking outdoors. Be ready for cold and/or wet weather in the winter and mosquitoes in the spring. It is easier to stay warm than get warm so bring extra clothes and take some off rather than not bringing enough clothes. Since the DC region has so many ticks and many of them seem to have Lyme's Disease, after each lab you should check yourself for ticks and tick bites.

Homework: Each week write a summary of one of the articles that was assigned:

Summarize the assigned paper. The summary should include a description of the following information:

- The hypothesis (or hypotheses) tested,
- Essential concepts in the paper,
- Methods used to test the hypotheses,
- Results of the study/ major findings.

In addition, include your own thoughts about the paper. For example:

- What are the big picture implications of the study?
- Were the methods appropriate for testing the stated hypothesis?
- Would you have done it differently or the same?
- What could be done to improve the study?

V. FACULTY EXPECTATIONS/COURSE POLICIES

HONOR CODE: The Biology Department strongly enforces the GMU Honor Code. Students are expected to read and adhere to the George Mason University Honor Code. **Ignorance of the Honor Code is no excuse for infractions thereof.** All work done in lecture and lab (exams, data sheets, quizzes, etc.) must be the sole work of the student. Copying data, falsifying data, cheating on exams and quizzes, failing to credit the work of others are all violations of the Honor Code and will be dealt with most seriously.

Course Expectations: Because our class activities are dependent on the readings, each student is expected to read the materials BEFORE the topic is discussed in class. In addition, you will often be expected to participate in class group discussions.

Assignments: All assignments are due at the *beginning* of class on the date they are due. ***A late penalty of 10% will be assessed for every day past due.***

Campus Resources

OFFICE OF DISABILITY SERVICES: If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at (703) 993-2474. All academic accommodations must be arranged through the ODS. <http://ods.gmu.edu>

WRITING CENTER: A114 Robinson Hall; (703) 993-1200 or Prince William Campus (703) 993-8451; <http://writingcenter.gmu.edu>

UNIVERSITY LIBRARIES “Ask a Librarian”
<http://library.gmu.edu/mudge/IM/IMRef.html>

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS): (703) 993-2380;
<http://caps.gmu.edu>

UNIVERSITY POLICIES: The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting student, faculty, and staff conduct in university

academic affairs. Other policies are available at <http://universitypolicy.gmu.edu/>. All members of the university community are responsible for knowing and following established policies.

Class Schedule Spring 2020

*(All lab field trip locations are tentative
and may change the week of the lab.
Guest lectures are also subject to change)*

Date:	Lecture Topic	Guest Speaker	Student Oral Presentations	Laboratory
Jan 24	Introduction, avian diversity, and biogeography	None		Introduction, birds on campus, Territory mapping
Jan 31	Bird orders families and species of the world	None		Occoquan NWR, Woodbridge
Feb 7	Adaptations for flight and feather structure	Dr. Carla Dove Smithsonian Natural History Museum		Smithsonian Natural History Museum – Tour of the Bird Collections Meet at museum 9:30am
Feb 14	Species, speciation, and systematics	None		Blandy Farms
Feb 21	Form, function, and physiology	Dr. Geoff Birchard GMU		Dyke marsh, Alexandria
Feb 28	Reproduction, nesting and the egg	Erica Royer Smithsonian Conservation Biological Institute		SCBI Front Royal pm
Mar 6	Bird senses, brains, and intelligence	None		Burke Lake Park, Burke Or Huntley meadows
Mar 13	Spring break no class			Spring break no class
Mar 20	Vocalizations and communication	Dr. Luther GMU		<i>Exploratory Hall L509</i> On campus Nest predation, experimentation, and territory Mapping
Mar 27	Annual cycles; molt, migration, and navigation	Dr. Pete Marra Georgetown University		Manassas Battlefield NHP
Apr 3	Life History; reproductive success	Dr. Sahas Barve Smithsonian Natural History Museum		<i>Exploratory Hall L509</i> On campus Nest predation, experimentation, and territory Mapping
Apr 10	Populations, species, and communities	Tom Lovejoy GMU		Leesylvania State Park
Apr 17	Social behavior, mates, and	None		Location TBA

	breeding systems			
Apr 24	Conservation, threats to birds	John Lamoreux NFWF		Occoquan NWR, Woodbridge
May 1	Conservation actions	Amy Upgren American Bird Conservancy		Final Exam Location TBA