

Ornithology

F 7:30-10:30 (BIOL 333L.01)

F 11-2 (BIOL 333.01)

Pond Station

Field Station at Dixie

Spring 2019

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Texts:*Ornithology* (Frank B. Gill, 3rd Edition)*A Guide to Field Identification: Birds of North America* (Golden Guide, Robbins et al.)*Peterson Field Guide to Bird Songs of Eastern and Central North America* (audio CD).

Readings from primary literature will also be assigned.

Office hours: by appointment, or drop by

About the course: Ornithology is the study of birds, including not only the study of bird diversity, but also the comparative study of avian anatomy, physiology, behavior and ecology. As we'll see, birds are also extremely well-suited for field study for a number of reasons, so we will learn many techniques for the study of birds in this class. Scientists are not alone in their love of birds; birds have captured the poetic imagination for millennia, singing and flying their way into poems and songs and metaphor. We will pay particular attention to the flight and voices of birds in this course.

Course goals:

To learn about **bird diversity**, including distinguishing characteristics of major groups and comparative anatomy, physiology, behavior and ecology;

To learn to **connect levels of analysis in biology** – that is, using birds as a model, learn how genetics affects physiology, how physiology affects behavior, how behavior and physiology affect ecology, etc.

To understand how to **ask and answer questions** about birds in a scientific context;

To learn the **characteristics and natural history** of local species;

To acquire **skills for identifying and observing** new species, wherever you end up after the CofC;

To **notice** birds where you never noticed them before; to be **aware** of the birds in your world and to be aware of how your behavior affects the birds around you.

Course overview:

To maximize time *doing* ornithology, all the lectures are online. Each week, you watch the online lectures for that week; in class, we'll spend some time going over any questions or reviewing some of the main points. Before class the following week, you take an on-line quiz for that material. After taking the on-line quiz, think about the material – did you understand it as well as you thought? Clear up any questions, and you can take a 2nd version of the quiz if you want; first and second versions will be averaged.

What we'll be doing instead of lectures in class: field work (bird ID practice, data collection for class projects, bird capture/handling, field trips); analyzing acoustic recordings; discussing / writing about primary literature; oral presentations on avian taxonomy and data analysis.

In addition to the online quizzes, there are 2 taxonomy exams and a cumulative final exam.

About the schedule: While officially lab is Friday morning with lecture after lab, this schedule is an artifact of the need to have formal schedules. We will engage in the 'lab activities' (most of which will be in the field) when the weather is appropriate, and come inside for lecture when it is not.

About Oaks: I use Oaks for submitting assignments, for providing access to content or other materials not found in the texts, for on-line lectures (VoiceThreads) and for announcements. Please note that I do not post lecture notes or PowerPoint slides from in-class lectures online. Learning to listen, process and take note of critical information are life-skills you will need to develop; moreover, studies have shown that students actually learn *less* if they have pre-printed slides. Actively engaging your brain during lecture turns out to be pretty important. That said, if you ever feel as if you missed something important on a slide, feel free to make an appointment; I'm happy to allow you to review slides at your leisure!

About the Lab: The laboratory section of this class is a workshop: we will work together to learn about local bird species, to learn techniques for the study of birds, and to collect data for the Group Projects. By

“work together” I mean just that: the whole lab section will help each other learn the local birds; in addition, you will work closely with 1-2 other students as **field partners**.

About field work: Most of the labs are in the field, so weather will be an issue. In many cases, we may be outside in less-than-pleasant weather, so **weather-appropriate dress is crucial**. Warm shoes that can stand a little water are a must. Err on the side of dressing too warm – even in SC, early mornings can be cold, particularly if you aren’t moving around much. Mist will make you cold and wet even on clear days. You are adults; I’m not going to tell you how to dress, and we all sometimes make mistakes in dressing for field work, but we’ll all appreciate an absence of whining.

While most days will start in the field, rain or excessive cold may postpone the lab activities until later in the morning. NOTE THAT WE WILL START AT 7:30AM REGARDLESS. If the weather is bad at 7:30am, we will get some lecture, discussion, writing or inside lab work out of the way so that we can get back into the field when the weather improves. Under extremely unusual weather circumstances (freezing rain, snow), we may delay the start of class and/or cancel for safety reasons; these changes will be posted on the Oaks site, so check there if you think the weather may limit safe travel to Dixie.

The lab schedule below is subject to changes depending on availability of limited access sites, weather, recent not-to-be-missed sightings, etc. Updates will be posted to Oaks. Possible field trips may include: Center for Birds of Prey, Pitt St. “Bridge” & Patriots Pt., ACE Basin/Bear Island NWR, Magnolia Plantation, Caw Caw, Botany Bay.

About Attendance: **Active participation in laboratory activities is essential; attendance is mandatory but not sufficient.** We typically begin fieldwork early, and some of our field trips require a significant drive. We will begin at the scheduled time. Mistakes happen – anyone could have unforeseen difficulties with the commute or oversleep – so a small number of missed lab activities can be erased with ‘tokens’ (see Grading for details). You are entirely responsible for all material missed in class or lab, regardless.

Grades & related stuff:

Quizzes & topic schedule:

There will be **11 on-line quizzes** (one due every Friday, 1/25-4/12, at 6am), each focused on a different central topic in Ornithology. Quizzes will cover the most recent lecture topic(s), regardless of whether that lecture was on-line or in-class. Quizzes will be primarily multi-select (“select all that apply”) / multiple choice format, with some short answer questions. Quizzes are all “open-note”, and are due the week after we’ll be discussing the relevant material in class (see Planned Schedule, below).

Ideally, our schedule works like this: (1) watch on-line lecture(s) by week listed under “Lecture/Discussion”; (2) we’ll review/discuss this material in class that week – get any questions answered now!; (3) take quiz by following Friday (“What’s due”).

I may be old-fashioned, but I have this notion that the whole point of all this is to learn stuff. And we all know that we don’t always learn stuff the first time we hear it or think about it. So, after each quiz is graded, you’ll have the opportunity to review the quiz and material, and decide if you’d like a second attempt. “Second attempt” quizzes will be a new quiz on the same material, and your new ‘topic quiz score’ for that topic will be the average of the first and second attempts. No “tokens” are necessary for second attempts, and while you only get 1 “second attempt” / quiz, you can do “second attempts” for as many quizzes as you want. Second attempts need to be requested within 1 week of the due date for the “first attempt” quiz, and will be due 1 week following the request (or 4/23, whichever comes first).

Exams:

There will be **two lab exams** (covering avian diversity & taxonomy), and a **final exam**. The final exam will be **cumulative**, and will cover taxonomy as well as other class material (think of it as a combined lecture/lab final exam); it may also cover “recent material” that wasn’t covered on a quiz. *The taxonomy portion of the final exam will be more than a re-hashing of previous material; in particular, you will be asked to synthesize taxonomic material from the previous two lab exams.* The final exam will also include a bird identification section (which may be at least partially in the field).

Exams will be primarily “short-answer” in format; lab exams may be short answer and/or multiple choice. The final exam may include longer essay questions.

Assignments:

There are **four kinds of assignments**: the **Taxonomy Assignments (2 of them)**, the **Group Projects** (data collection), a **Data Analysis** (using data from the Group Projects), and **Article Interpretations**.

Taxonomy Assignments (x2): You will research two assigned groups of birds, and present these birds to the class. In essence, you will be responsible for teaching basic bird taxonomy to the class. Your oral presentations will include a basic summary of the distinguishing characteristics of this group of birds: what unites them as a group, what distinguishes the families within the group, where they live (both distribution and habitat), how they make a living, etc. You will organize and present this information to the class as an oral presentation with a supporting hand-out that has a table summarizing the critical information. Before your presentation, you will submit a draft of your presentation materials (including hand-out); you will be graded both on your draft and final presentation.

Group Projects: As a class, we will all be collecting data on several research projects, possibly including (and depending on which ones we are able to get up and running): (1) seasonal bird survey; (2) bioacoustic survey; and (3) urban/rural comparison of bird personality. The ‘urban/rural’ comparisons will be between birds at Dixie and birds on the downtown CofC campus (main campus and Harbor Walk). Everyone will be responsible for data collection on all projects.

Article interpretation (x5): Five times across the semester (primarily in the second half of the semester), you will find a primary literature article related to material discussed in class, and post it as a pdf to the Discussion Board with a *brief* summary (few sentences). In class, you may be asked to discuss your article in more detail; we will also be practicing writing about science for non-scientists, by writing interpretations of these articles in class.

Data analysis presentation: Using data collected in the Group Projects, each of you will choose a dataset (or a subset of one of the datasets, or a combination of datasets), and use those data to address a question that is either a question that was originally planned in the development of the project (a “class” question”) or that is novel (that is, you came up with that question). You will present the results of your analysis (i.e., the answer to that question) in a final presentation. We’ll do some practice data analyses in class earlier in the semester.

Grading:

The grading in this class is based on a different philosophy than you may have encountered in other classes: rather than assign a certain number of points or % value to different activities in the class and then having a formula to calculate the grade, we’re going to use a ‘specifications’ grading scheme. Ideally, this type of grading is more transparent (you always know what your grade is, without calculating any weighted or partial averages); allows you to target your efforts with maximal efficiency (no more wondering ‘how much will it change my grade if I do X?’); and removes arbitrary point schemes (‘what’s the difference between an oral presentation that’s a 95% vs. a 93%?’). Philosophically, these grading schemes are also more akin to what we do in the professional world: if your work meets the specifications, then you get credit for it. If it doesn’t, you don’t. There’s not a lot of partial credit in the professional world. Or as Yoda says: “Do or do not. There is no try”

The table below next page outlines what you need to do to receive different grades in this class. Note that what ‘meeting specifications means for each assignment will be outlined in much more specific detail in the assignment information.

When scores fall into more than one column, averages are used (for example, a mix of A and B grades would be an A- or B+).

	D	C	B	A
Topic quizzes	> 60% on all OR overall ave >63%	> 70% on all OR overall ave >73%	> 80% on all OR overall ave > 83%	> 90% on all OR overall ave > 93%
Taxonomy exams	> 60% on both OR ave > 63%	> 70% on both OR ave >73%	> 80% on both OR ave > 83%	> 90% on both OR ave > 93%
Final exam	> 60%	> 70%	> 80%	> 90%
Field/lab work, in-class assignments: # absences or lack of participation; ID skills	3 absences/lack of participation OR ID skills decline	2 absences/lack of participation OR No change in ID skills	1 absence/lack of participation & ID skills improve	0 absences/lack of participation & ID skills improve
Assignments (Taxonomy drafts & finals, article interpretations, final data analysis)	13-18 missed specifications	7-12 missed specifications	4-6 missed specifications	0-3 missed specifications

Now, nobody meets specifications all the time – that’s just life. And the point here is to learn, right? And we learn from mistakes. So we have to build that in, somehow. To allow for mistakes that don’t doom your grade, specifications grading schemes also involve “tokens” – think of these as opportunities to erase mistakes. You all start with **2** tokens. You may use tokens to do any of the following:

- Erase one unexcused missed field / lab work
- Erase missed assignment specifications (any assignment; 1 specification / token)
- Re-do a taxonomy exam (1 / token); re-do exams will be new (i.e., you won’t be re-taking the same exam), and may differ in format. Re-do and original exam grades are averaged.
- Add 2% pts to final exam (one token only; if you have a token left at the end of the semester and adding 2% to your final exam score will help you, I’ll apply this token for you!)

You may also earn additional tokens:

- Develop an article interpretation into a full blog post (may require multiple drafts)
- Develop a novel and significant (must be able to justify why interesting) question for final data analysis project; justification must be based on primary literature.

Final exam: Our class schedule is different from the ‘standard’ semester schedule, so we don’t fit neatly into any specific Final Exam time. Our official class time is F 11am; MWF 11am classes have their final exam on **Friday, April 26 at 8am**, so that’s when we’ll have ours. We can discuss this more later in the semester.

The (planned) schedule for the rest of the semester can be found in the table on the next page (may change as needed for weather, etc.).

Date	Lecture (on-line unless <i>italic</i>) & Discussion (what we'll talk about; ideally you should watch the on-line lectures before class)	Lab (what we'll do)	What's due? (due 6am Friday unless otherwise noted)
1/11	<i>Intro to class</i> <i>What is a bird? Why study them?</i>	Using binoculars / City birds / Dixie Plantation & project intro	
1/18	Skeleton & feathers	Intro to Sound Analysis / Bird capture, handling and banding	
1/25	How do birds fly?	Begin Group Project data collection Taxonomy 1 Presentations	Quiz 1: Skeletal system, feathers Tax 1 Draft (due by 3pm Wednesday) Tax 1 Final
2/1	General physiology: metabolism, temperature regulation, water balance, respiration, circulation	Center for Birds of Prey [Shorebirds]	Quiz 2: Flight
2/8	Foraging	Lab exam: Taxonomy 1 Short field trip and/or Group Project	Quiz 3: General physiology
2/15	How do birds sing? (And why? And other topics related to acoustic communication)	Field trip: ACE basin, Bear Island	Quiz 4: Foraging
2/22	Plumage and other visual communication	Taxonomy 2 Presentations Short field trip and/or Group Project	Quiz 5: Bird song & other acoustic communication Tax 2 Draft (due by 3pm Wednesday) Tax 2 Final
3/1	Bird social groups: flocks vs territories vs solitary Reproduction 1: copulations, nests, eggs	Lab exam: Taxonomy 2	Quiz 6: Plumage & other visual communication
3/8	Reproduction 2: incubation, development post-hatch	Short field trip and/or Group Project	Quiz 7: Bird social groups, introduction to reproduction Article for interpretation
3/15	Reproduction 3: parenting, timing of reproduction	Field trip and/or Group Project	Quiz 8: Incubation & development post-hatch Article for interpretation
3/22	SPRING BREAK!		
3/29	Migration & reproductive ecology	Field trip and/or Group Project	Quiz 9: Parenting, timing of reproduction Article for interpretation
4/5	Mating systems	Field trip and/or Group Project	Quiz 10: Migration & reproductive ecology Article for interpretation
4/12	<i>Avian Conservation: Global, local & Personal Issues</i>	Field trip and/or Group Project	Quiz 11: Mating systems Article for interpretation
4/19	Data Analysis presentations		Data Analysis Assignment

And now, this:

As per College of Charleston Policy 7.6.10, the following information must now appear on all course syllabi. Some of this has already been discussed above, but rules are rules, so here goes.

3.1 Course Title, Course Number, and Section Number

See top of pg. 1

3.2 Course Prerequisites or Co-requisites

Prerequisites = BIOL 111/111L, BIOL 112/112L, BIOL 211/211D, BIOL 305

Pre- or Co-requisite = MATH 250

(But you're all already in the class, so you knew this, right?)

3.3 Semester or Academic Term

See top of pg. 1

3.4 Faculty Name/Instructor of Record and Contact Information

See top of pg. 1

3.5 Course Meeting Places and Times

See top of pg. 1

3.6 Faculty Office Hours

See top of pg. 1

3.7 Instructional Objectives and Student Learning Outcomes

I think Instructional Objectives roughly correspond to Course Goals, pg. 1. As I understand them, Student Learning Outcomes (or SLOs, if you like the jargon) are supposed to be a short list of what you'll learn in this class. While it dismays me to think that learning in any class can be reduced to a short bulleted list, here goes:

- Classify birds to Orders based on distinguishing characteristics;
- Explain the impacts of flight on avian anatomy and physiology;
- Explain the relationships between reproductive behavior, physiology and development in birds across a range of life histories;
- Formulate and evaluate hypotheses using data.

3.8 Attendance Policies

See About Attendance, pg. 2

3.9 Grading Policy

If this refers to the break-down of how grades are calculated, see Grading, pg. 3-4. Otherwise, my policy is to grade as carefully and fairly as I can. If you ever have any questions about any of your grades, please see me.

3.10 Required and Optional Textbooks, Equipment, and Technology

See Texts, pg. 1.

3.11 Accommodations for Students with Disabilities

We do a lot of work in the field in this class, so if you have trouble with the physical component of the class, please let me know as soon as possible so we can design alternative activities. Please also let me know early in the semester if you need extra time on exams or other accommodations. You can find information about our Center for Disability Services here:

<http://disabilityservices.cofc.edu/>

3.12 Academic Integrity Statement(s)

"Academic Integrity" is a fancy way of saying honesty. I prefer to assume that folks are fundamentally honest (and generally I actually find this to be true), and let's face it, a dishonest person is not going to be persuaded to be honest just because of some statement on a syllabus. But I need to have a statement, so here goes: be honest. I know sometimes stress can make you do things you wouldn't otherwise do, and you might tell yourself that 'it's just a little cheating', but being honest is like being pregnant: you are or you aren't. Your integrity is worth a lot more than any grade; don't turn yourself into someone you can't respect for an exam or assignment

you won't even remember in a couple of years. Please note: making up data is perhaps the most egregious form of academic dishonesty in science. Don't be that person.

Any cheating, plagiarism, etc. will be reported to the Honor Board. If you are not familiar with the College of Charleston Honor Code, you can find it in the student handbook:

<http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

3.13 Program-Specific Elements

I'm not sure what this refers to, so until told otherwise, I'm not going to include anything here.