

Biology 211/211D: BIODIVERSITY, ECOLOGY, AND CONSERVATION BIOLOGY
Section 6 (4 credit hours)

Spring 2020

Lecture: MWF 9-9:50am, RITA 152

Discussion: M 2-5pm, RITA 271

Instructor: Amanda Kelley (she/her)

Email: kelleyad1@cofc.edu

Office: RITA 216

Office hours: Tuesdays and Thursdays 10:50-11:50am, and by appointment

After class help: Students are welcome to talk with me briefly after class, but for in depth questions, come to my office hours or email me to schedule an appointment. In your email, be sure to include your course and section in the subject line. I will also answer quick questions via email. You can expect a reply within 24hrs Monday through Friday, 8am-5pm. If you're working through materials and have a lot of questions, do come see me in person rather than writing a long email.

Textbook (recommended): Biological Science, 6th ed., S. Freeman et al.

Prerequisites: Biology 111, 112

Course Description: This course focuses on biology at the level of the whole organism and above, including how organisms interact with their environment, how organisms are related, and how human activity affects life on Earth. During the semester, you will be introduced to three areas of focus: (1) population biology, including population ecology and evolution; (2) interactions among organisms and their environments at the community, ecosystem, and biosphere levels, and (3) biodiversity and the study of how groups of organisms are related by common descent.

Course Structure: Doing biology requires understanding concepts and using practical skills to develop and test those concepts. To address both of these features, this course includes two essential components – lecture and discussion – which contribute to a single grade.

Lecture will introduce you to key concepts in ecology, biodiversity, and conservation biology.

Discussion will help you develop practical skills used in interpreting, conducting, and communicating science. You will gain experience examining primary scientific literature; organizing, visualizing, and analyzing data; identifying research questions and designing experiments; presenting science both orally and in writing.

Student Learning Outcomes: At the end of this course, students are expected to be able to:

- explain the forces that lead to evolutionary change within populations and diversification among species
- interpret the evolutionary relationships depicted in phylogenetic trees
- build a foundation of knowledge about life's diversity and interrelatedness
- apply ecological and evolutionary principles to the conservation of biodiversity
- describe the processes by which populations of organisms change in size
- discuss how interactions with the physical environment and with other organisms influence populations and communities
- demonstrate the impact of human resource use on ecological systems
- synthesize knowledge from ecology with social and/or economic systems to address sustainability problems
- demonstrate the following professional skills: use primary literature, generate scientific questions and pose testable hypotheses, analyze data to evaluate hypotheses, use quantitative models to describe biological processes, and write for a scientific audience

Grading

LECTURE

Tests (3*10%)	30%
Final exam	20%
Participation	4%

Tests are based on lecture material and select discussion material. Tests will not be cumulative, but the final exam is.

DISCUSSION

In-class assignments	36%
Proposal	5%
Book review	5%

A	>92%
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	<60

Letter grades will be assigned using the grade scale above.

Extra Credit (6%)

You may submit a set of 100 hand-written study cards at the start of each test or exam and receive an extra 1.5% on your final grade. Cards must be hand-written – no exceptions. Further details are provided on OAKS.

Missed Tests

There will be no make ups for missed tests. If you have an excused absence (e.g., illness, compassionate reasons), the weight of the test will be transferred to the final exam. (Exceptions may apply to students in approved athletics programs. Please see me early in the semester if you may be travelling for athletics.) To obtain an excused absence, see the Absence Memo Office.

Re-grading

Requests for regrading must be made within one week of the work being returned. Students must provide a written justification for the change of grade using the grading rubric/key. Requests to fix addition errors must also be made within a week of the grade posting.

Attendance

Attendance is essential to earn a good grade in this course, as you will be actively discussing topics within teams for both the lecture and discussion. Missing more than five lectures or three discussions will result in a WA/F grade. Three lates/early departures are equal to one absence. Students are responsible for all missed content. I will post my lecture slides to OAKS, but there are no make-up lectures or discussions.

In Class Expectations

Be respectful of the learning environment, and do not behave in a way that disrupts other members of the classroom. Silence your cellphone and refrain from using technology for non-course content. If you need to take a call or sleep, please step out. We may be discussing some potentially hot topics, so consider whether your comments will be hurtful before you voice them.

Late Policy

Assignments submitted after the due date but on the same day will receive -25%. Assignments submitted the following day before 11:30pm will receive -50%. Any later submissions will not be accepted and will receive a zero. Discussion assignments required for team projects cannot receive partial credit if the applicable discussion has passed.

Honor Code and Academic Integrity

Cheating, attempted cheating, and plagiarism are violations of our Honor Code that will be investigated when identified. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing

information stored on or texted to a cell phone/device), copying from others' exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. For complete details regarding our honor code please see: <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

OAKS

You have an assigned a College ID and an associated password for access to online resources, including the College of Charleston's course management system (OAKS). I will post class announcements, grades, and other important information on OAKS throughout the term; check often for this important information. If you have trouble with OAKS, please email me.

Preferred Names and Pronouns

I will gladly honor your request to address you by the name and gender pronouns of your choice. Please advise me of this via your college-issued email account or during office hours.

Accommodations for Disabilities

To request classroom accommodation, you must first register with the Center for Disability Services at the beginning of the semester. This office will provide you with documentation that you will then provide to us when you request accommodation. For more information, see <http://disabilityservices.cofc.edu/>

Food Insecurity

If you are facing challenges in securing food (such as not being able to afford groceries or get sufficient food to eat every day) or housing (such as lacking a safe and stable place to live), please contact the Dean of Students for support (<http://studentaffairs.cofc.edu/about/salt.php>). Also, you can go to <http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php> to learn about food and housing assistance that is available to you. There are several resources on and off campus to help, including the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need.

Physical & Mental Health Resources (developed by The Task Force on Student Well-Being)

If you are struggling with illness, there are services on campus to help you. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). If you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/ homesickness) please consider contacting either the Counseling Center (professional counselors at <http://counseling.cofc.edu> or 843.953.5640) or the Cougar Counseling Team (certified volunteers through texting "4support" to 839863 or visit <http://counseling.cofc.edu/cct/index.php>). You can also visit both on campus on the 3rd floor of Robert Scott Small.

Tentative Lecture Schedule

WEEK	DATE	TOPICS
1	Jan 8-10	Introduction to the course, evolution
2	Jan 13-17	Natural selection, evolutionary processes
3	Jan 21-24	evolutionary processes, speciation
4	Jan 27-31	Population ecology, sex differences Test 1 Jan 31
5	Feb 3-7	Sexual selection
6	Feb 10-14	Bacteria, Archaea, Protists
7	Feb 17-21	Plants, Fungi
8	Feb 24-28	Introduction to animals Test 2 Feb 28
9	Mar 2-6	Invertebrates
10	Mar 9-13	Vertebrates
11	Mar 16-20	Spring Break: no classes
12	Mar 23-27	Vertebrates Test 3 Mar 27

13	Mar 30-Apr 3	Community ecology
14	Apr 6-10	biodiversity, climate change
15	Apr 13-17	Behavioural ecology
16	Apr 20-22	Review for final exam

Discussion Format

The discussion participation grade (36%) is broken into smaller weekly assignments and activities, most of which are completed in groups during the discussion. Typically, the grades for discussion activities are based on completion and engagement. My goal here is to give you a space where you feel free to voice your ideas without being penalized. When practicing science, mistakes are both common and necessary! However, you can expect me to meet with your team to discuss your findings and make sure you're on the right track.

Conservation Project & Proposal

You will work with a team on a multi-week research project. Your team will investigate an imperiled or invasive species, survey the literature, write an annotated bibliography, and identify existing gaps in the current research. After you decide on the highest priority topics, you'll divide them among team members. Each individual will then write their own research proposal, and teams will present on their species and proposed research. Details on the project will be provided on OAKS.

Book Review

Over the course of the semester, you will read one of the following:

The Song of the Dodo: Island Biogeography in an age of extinctions by David Quammen

The Omnivore's Dilemma: a natural history of four meals by Michael Pollan

The Selfish Gene by Richard Dawkins

Your Inner Fish: a journey into the 3.5-billion-year history of the human body by Neil Shubin

We'll have two "book club" discussions towards the end of the semester, where you'll get a chance to discuss the book with others, as well as teach something you've learned. You will also submit a written review of the book. Details are provided on OAKS.

Tentative Discussion Schedule

WEEK	ACTIVITIES	ASSIGNMENT & WORTH (/36%)
2	IUCN exercise & developing research questions	Team activity, 2%
4	Statistics and visualizing data	Team worksheet, 2%
5	Building phylogenies	Team worksheet, 2%
6	Conservation project: introduction to project, finding & using sources	(Team) Annotated Bibliography, 3%
7	Conservation Project: Research Priorities & Pre-proposals	Team worksheet, 3% Individual pre-proposal, 2%
8	Experimental Design Exercise	Team worksheet, 2%
9	Conservation project: peer review	Individual assessments, 3%
10	Conservation project: presentation prep	Contribution to team project, 2%
12	Conservation project: research pitches	Team presentation, 2%
13	Field Trip (attendance mandatory)	Individual worksheet, 4%
14	Book club, part 1: group discussions	Team activity, 2%
15	Major Fields Test	Attendance 2%
16	Book club, part 2: teaching concepts	Individual presentation, 5%