

**Principles of Ecology (BIOL 370)**  
**Fall 2019**  
**EHFA 257, MWF 9:00 - 9:50 AM**

**Instructor:** Dr. John Hutchens

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**Office Hours:** MWF 10:00 AM – 12:00 noon, by appointment, or just stop by

**Course web page:** <http://ww2.coastal.edu/jjhutch/biol370.htm>

**Prerequisite:** BIOL 122 or MSCI 302. **Co-requisite:** BIOL 370L

**Required text:** Molles, M.C. 2019. Ecology: Concepts and Applications. 8<sup>th</sup> Edition. McGraw Hill.

**Course Description from CCU Catalog:** Interactions of organisms and their environments. Ecosystem structure and function.

**Objectives:** BIOL 370 is a core course for biology majors. My objective is to provide you with a comprehensive introduction to the science of ecology. Ecology is a diverse field that studies how organisms interact with their environment at many levels (from individuals to landscapes). Consequently, we will cover a wide range of topics that will allow you to understand and appreciate how ecologists see the world and what kinds of questions they ask.

**Student Learning Outcomes:** Students who successfully complete this course will be able to:

1. Describe key ecological topics across a range of hierarchical scales.
2. Describe how organisms respond physiologically to differences in the abiotic environment.
3. Describe how organisms interact behaviorally with other organisms.
4. Describe both in words and in equations how populations change in size and compete.
5. Describe how populations interact through competition and predation.
6. Describe how community structure is measured, and what factors influence community structure.
7. Describe how communities change through time and how disturbances influence this change.
8. Describe how ecosystems are studied from a structural and functional perspective.
9. Appreciate how ecological experiments are conducted.
10. Practice how to synthesize primary literature in the field of ecology.

**Grading:** Your grade is based on two scientific paper reviews, three lecture exams, a cumulative final exam, class participation, and a writing assignment. Scientific paper reviews (35 pts each) will require answering questions based on outside readings about ecology and human diseases. Exams will consist of a mix of multiple choice questions, term elaborations, and short answer questions. Exams will cover material from both lecture notes and the book, and include both factual and analytical types of questions. Analytical questions will require you to apply your ecological knowledge as well as interpret data. The writing assignment will consist of a concise synthesis (about 2 p, 500 words) of two related papers. Late assignments will be penalized by 10%. Classroom participation includes attendance and involvement in classroom activities, which may include in-class writing and analysis.

Point Distribution:

Assignment	Points
Reviews	70
Synthesis	100
Exam 1	100
Exam 2	100
Exam 3	100
Participation	30
Final Exam	100
Total	600

Grading scale:

Grade	%	Earned Points
A	90 – 100	537 – 600
B+	87 – 89	519 – 536
B	80 – 86	477 – 518
C+	77 – 79	459 – 476
C	70 – 76	417 – 458
D+	67 – 69	399 – 416
D	60 – 66	357 – 398
F	0 – 59	0 – 356

*Cheating on exams and plagiarism on the writing assignment will not be tolerated, and a grade of F will be earned for the assignment. Cell phones must be put away during exams.*

CCU Student Honor Pledge: “Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. As members of this community, we are accountable for our actions and are committed to creating an atmosphere of mutual respect and trust. On my honor, I pledge:

- That I will take responsibility for my personal behavior; and
- That I will actively oppose every instance of academic dishonesty as defined in the Code of Student Conduct.

From this day forward, my signature on any University document, including tests, papers, and other work submitted for a grade is a confirmation of this honor pledge.”

**Attendance:** Attending lecture is not mandatory, but it is the key to doing well in this class. Attendance is mandatory for exams—make-up exams are only given for university-excused absences (see <http://www.coastal.edu/policies/policyDetails.html?x=120> for details). If you miss an exam you must contact me as soon as possible (within 24 hours) about the *possibility* of making up an exam. If you know you are going to be absent for an exam, you must contact me *as soon as possible before the exam* in order to schedule a make-up.

**Learning disabilities:** Students with learning disabilities should see me at the beginning of the semester so special arrangements can be made, if necessary, for your success in this course.

**Other disabilities:** Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services (843-349-2503 or <https://www.coastal.edu/disabilityservices/>).

**Reminder:** Turn OFF your cell phones before class and put them away!

**Caveat:** This syllabus is subject to change at the instructor’s discretion.

#### **Tips for success:**

- This is an upper-level course. You are expected to learn a lot. For many of you, this means you need to work hard and study effectively. I recommend studying the material in this class EVERY day—work with the material, do not just skim it.
- I provide the lecture PowerPoint slides, but you still need to take good notes including paying particular attention to figures from the book and terms and examples not in the book. Studies show that writing notes helps you learn so do not rely solely on the slides. **In fact, you will find the slides are really a guide to what we’re discussing in class versus a detailed set of notes.**
- **Exams are based primarily on lecture material.** However, I frequently use examples from the book and outside readings. Focus on lecture notes and read the sections in the book that we talk about in class. Reading the book is very helpful and reinforces the lecture. Reading the book ahead of lecture is probably best, but you will not be responsible for everything that is in each assigned chapter, just the topics we discuss in lecture, so re-reading the sections we cover in lecture will help on exams.
- Just because something seems clear in lecture, it does not mean that you know the topic or term well enough to do well on an exam where you may need to apply this topic to a novel situation. Also, exam points will come from short-answer questions where you have to provide the answer instead of choosing from a list of options. While this type of question requires more from you, it also allows you to earn partial credit.
- Details matter. I expect you to learn the details of definitions, concepts, and experiments. For example, wouldn’t you like to be confident that your doctor actually knows the details well enough to diagnose your illness and decide on the correct course of action?
- Ask questions when something does not make sense or if you have a relevant point to make. I like questions. Come by my office or e-mail to ask more questions.

**Schedule:** This schedule is tentative and subject to change.

Week	Dates	Topic	Chapter Readings
1	Aug 21 & 23	Introduction to ecology; Temperature	pp. 1-3, 5
<b>Individuals and the environment</b>			
2	Aug 26 – 30	Temperature	5
3	Sep 4 & 6 <i>Sep 2: Labor Day</i> <b>Sep 6: Paper review 1 due</b>	Water	6
4	Sep 9 – 13	Energy and nutrients	7
5	Sep 16 – 20 <b>Exam 1: Sep 20</b>	Energy and nutrients	7
<b>Populations and the environment</b>			
6	Sep 23 – 27	Population distribution and abundance	9
7	Sep 30 & Oct 2 <b>Oct 2: Synthesis due</b> <i>Oct 4: Student holiday</i>	Population dynamics	10
8	Oct 7 – 11	Population growth	11
<b>Communities and the environment</b>			
9	Oct 14 – 18 <b>Exam 2: Oct 18</b>	Competition	13
10	Oct 21 – 25	Exploitation	14
11	Oct 28 – Nov 1 <i>Oct 28: Last day to W</i> <b>Nov 1: Paper review 2 due</b>	Species abundance and diversity	16
12	Nov 4 – 8	Geographic ecology	22
<b>Ecosystems</b>			
13	Nov 11 – 15 <b>Exam 3 - Nov 15</b>	Primary production and energy flow	18
14	Nov 18 – 22 <i>Nov 25 – 29</i>	Succession and stability	20
		<i>Thanksgiving Break</i>	
15	Dec 2 – 6	Nutrient cycling and retention; Final thoughts	19
	<b>Dec 11, Wed. 11:00 AM</b>	<b>Cumulative Final Exam</b>	