

General Ecology

Biology 341 (Section 01)

Course schedule – Semester Fall 2017

Instructor: Dr. Courtney Murren

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office hours: by email appointment and 930-1030 W

Credits: 4

Class meeting time: 955-1120 (HWWE 211)

Lab time: 1-5 W (HWE 302) see lab syllabus

Prerequisites: BIOL111/111L; BIOL112/112L, BIOL211/BIOL211D

Co- or pre- requisites: BIOL305; MATH250

Instructional Objectives

Ecology is the study of organisms' interactions with each other and the physical environment. As such the study of ecology examines questions at numerous scales from populations to communities to ecosystems. Variation in scale and habitat (e.g. marine vs. terrestrial) results in many techniques to test these questions. Ecology is also a quantitative discipline – modelling approaches and statistical evaluation of datasets are important components of modern ecological science. This semester we will examine these topics with a mixture of lecture, hands on activities, discussion of foundational and recent papers in the primary literature. We will practice quantitative techniques and writing in ecology as an ecological 'apprentice' professional and as a scientific communicator for broad audiences. Bring your enthusiasm – it is contagious.

Learning outcomes for this course include:

- 1) understanding the influence of abiotic factors on distribution of biodiversity on Earth
- 2) evaluating the principles of biogeochemistry – interactions of organisms and physical environment
- 3) assessing the flow of energy through ecosystems – terrestrial, marine and fresh water systems
- 4) understanding growth, regulation and dynamics of populations
- 5) applying models to understand population and community growth and change
- 6) examining biodiversity through both abundance and richness
- 7) explaining scales and patterns in ecology and biodiversity
- 8) observing how species interact with each other and how these interactions change through time

- 9) appreciating the relationships between ecology and society (conservation, invasion, agriculture, ecosystem services)
- 10) understanding the contribution of observational, laboratory, theoretical and field studies all contribute to ecology
- 11) experiencing how scientists do their work including peer review, and that scientific understanding changes through time with addition of new data and discoveries

Students will develop skills including:

- 1) conducting scientific research by developing or following well described protocols and in open-ended research projects in the field, controlled growth environments and laboratory
- 2) analyzing, writing about and discussing ecological primary literature
- 3) working collaboratively with peers to design and evaluate projects, interpret results, and develop conclusions.
- 4) working with quantitative data for data presentation and analysis and to draw ecological conclusions based on the data
- 5) practice notetaking in discussion, lecture, field and laboratory settings
- 6) practice writing for professional ecological audiences and for the public
- 7) practice peer review and constructive criticism of writing, data, interpretations and conclusions

Required textbook: Ecology 4th edition by Bowman, Hacker, Cain (Oxford University Press, Sinauer associates is an imprint of Oxford University Press).

Optional Textbook: We will be reading selections from Foundations of Ecology. Leslie A. Real and James H. Brown (University of Chicago Press). This text is a re-print of classic papers in ecology with commentary. I will share the references to the original papers on OAKS – thus an optional textbook.

Schedule of topics and assignment due dates

Week	Date	Topic	assignment	Readings from text
1	Aug 22	Introductions		Ch 1 & 2
1	Aug 24	Population Ecology*		Population ecology section readings: Ch 6-11*
2	Aug 29	<i>Discussion: Foundations Past and Present*</i>	Read papers on OAKS	
2	Aug 31	Population Ecology		
3	Sept 5	Population Ecology*		
3	Sept 7	Population Ecology	Modern Reading assignment DUE	
4	Sept 12	Population Ecology*		
4	Sept 14	Exam I		
5	Sept 19	Species Interactions		Species Interactions section readings:
5	Sept 21	<i>Discussion: Foundations Past and Present*</i>	Read papers on OAKS	
6	Sept 26	Species Interactions		

6	Sept 28	Species Interactions*	Modern Reading assignment DUE	Ch 12-15*
7	Oct 3	Community Ecology*		Community Ecology section readings: Ch 16-19*
7	Oct 5	<i>Discussion: Foundations Past and Present*</i>	Read papers on OAKS	
8	Oct 10	Community Ecology		
8	Oct 12	Exam II		
9	Oct 17	FALL BREAK		
9	Oct 19	Community		
10	Oct 24	<i>Discussion: Foundations Past and Present*</i>	Read papers on OAKS	Ecosystems section readings: Ch 20-22*
10	Oct 26	Ecosystem		
11	Oct 31	Ecosystem*	Modern Readings assignment DUE	
11	Nov 2	Ecosystem		
12	Nov 7	<i>Discussion: Foundations Past and Present*</i>	Read papers on OAKS	
12	Nov 9	Invasive Species & Ecology*		Ch 23
13	Nov 14	Exam III		
13	Nov 16	Agriculture and Mariculture Ecology	Modern Readings assignment DUE	Ch 24
14	Nov 21	<i>Discussion: Foundations Past and Present*</i>	Read papers on OAKS	
14	Nov 23	THANKSGIVING (break 11/22-11/26)	No class	
15	Nov 28	Endangered Species and Ecosystems*		Ch 23, 25
15	Nov 30	Guest speaker		
	Dec 5	READING DAY		
Final	Dec 7	FINAL EXAM 8am-11:00am lecture room		

* material from Chs 2-5.

Course requirements:

Exam 1: 100 points

Exam 2: 100 points

Exam 3: 100 points

Final exam: 150 points

Writing assignments: 120 points.

Discussion of literature & participation in hands on activities during lecture: 100 points

(being prepared, participating and attending will earn 80% of the points, adding positive, professional and intellectual engagement with instructor and peers will earn 90% or higher).

Laboratory (see lab syllabus for additional details and safety policy):

Written assignments: 300 points

Attendance, participation & prelab preparation: 140 points.

Total semester points: 1110 points.

Grading Policy: A: 93-100, 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: <59, other aspects of grading follow the CofC standards. Last day of Add Drop Aug 28; last day of W; Oct 26. Grades reflect the percentage of total points earned as described above.

Assignments and late policy: Assignments will be turned in on time to be considered for full credit. Assignments will be due at the start of class as we will have a discussion of the assignment in class. A loss of **5%** will be deducted per school day for **any** late assignment. Zero points will be recorded for an assignment if it is not turned in before the assignment is passed back. Suitable methods for turn in assignment – OAKS. If OAKS is down – please bring a printed copy to class.

Absence: The College of Charleston absence policy is in effect in this course. Missing lecture requires students to obtain notes from another student. Participation in discussion cannot be made up. Missing exam due to extreme illness or tragedy, please provide documentation through the student format, and independently contact me in a timely manner. Missing and exam due to an academic or athletic obligation, student must make arrangements with me prior to the exam for accommodation. Taking the exam prior to the exam date will be a preferred method.

Attendance is a critical component of participation in activities in the course. Discussion of primary materials will be held during class as well as hands on activities. Days with planned hands on activities in lecture are marked with an * - and subject to change.

Policy on electronic devices: All electronic devices may be used during class as long as they allow the student to stay focused on class activities and does not disturb others. No devices may be used during exams. For some laboratory or hands on activities, devices may be essential. Emergency? Respectfully step out of the classroom.

College Required Syllabus Material

1. **Center for Student Learning:** I encourage you to utilize the Center for Student Learning's (CSL) academic support services for assistance in study strategies, speaking & writing strategies, and course content. They offer tutoring, Supplemental Instruction, study strategy appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at <http://csl.cofc.edu> or call (843)953-5635.
2. **Center for Disability Services (<http://disabilityservices.cofc.edu/for-faculty/faqs.php>)**
 - Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.
 - The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed.

3. College of Charleston Honor Code and Academic Integrity

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor determines the student's actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), 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. Students can find the complete Honor Code and all related processes in the Student Handbook at <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

College Policy on religious holidays and dates specific to 2017-2018 academic year can be found here:
<http://academicaffairs.cofc.edu/documents/procedures-and-practices/statement-of-accommodation.pdf>

Should these dates require accommodation for you, please request accommodation in advance of the date.