

2020 Syllabus for Biology 312: General Ecology

Lecture: Monday/Wednesday/Friday 10:00am–10:50am

Lab: Thursday 8-10:50

Instructor: Dr. Althea A. Archer

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Virtual Office Hours: Mon/Fri 12:15-1:15pm & Th 11:30-12:30

Link: <https://minnstate.zoom.us/j/99287589339>

Meeting ID: 992 8758 9339

Passcode: Archer

The schedules and policies associated with this course may be subject to revision or change as a consequence of changing circumstances or events. Reasonable notification will be provided to students prior to any major changes in course policies or procedures.

Course Description

Interactions between organisms and their organic and inorganic environment. Biomes, climate, populations, communities, biotic interactions, energy and nutrients, landscape and spatial ecology, biodiversity patterns.

Learning Outcomes

You will learn to draw together elements from biology, chemistry, physics, geology, and mathematics to gain a greater understanding of ecological relationships in the natural world. The goals of the course are to:

1. Classify organizational levels observed in ecology
2. Explain how populations are regulated and how data can be collected, analyzed, and interpreted using statistics, life tables, graphs, and survivorship curves
3. Describe the interactions between different species and how they impact one another
4. Illustrate the major forces responsible for community structure, how community structure can be represented by food webs, and how communities change in both space and time
5. Discuss patterns and measurements of biodiversity and predict the consequences of continued species loss
6. Accurately and effectively document field observations with field notes and data collection
7. Link field observations with key ecological concepts and relevant scientific literature
8. Execute the scientific method using reproducible research methods
9. Effectively communicate scientific research results through oral and written presentations

Required Textbooks

- SimUText Ecology
- Recommended: McMillan, V.E. 2012. *Writing Papers in the Biological Sciences*. 5th ed. New York: Bedford/St. Martin's
- Recommended: Molles, Jr., M.C. *Ecology: Concepts and Applications*.

Attendance Policy

Regular attendance and participation in class is critical to your success. This course will be offered in a hybrid format. Most of the lectures will be convened online via synchronous Zoom meetings, and the textbook assignments will be conducted through an interactive online textbook. The first five labs will require in-person activities in an outdoor setting. You will be working with small groups during each lab, and will be required to wear a mask.

Students/faculty/staff displaying signs and symptoms compatible with COVID-19 (fever/chills, cough, shortness of breath, fatigue, body aches, headache, loss of smell/taste, sore throat, congestion, nausea/vomiting, diarrhea) will be asked to stay home (not enter the classroom) and will be encouraged to self-isolate/seek medical attention.

Accommodations for Students with Disabilities

If you have a mental or physical disability and qualify for accommodations under the Americans With Disabilities Act (for instance, additional time for exams), please contact the SCSU Student Disability Services office. If notified that a student qualifies for accommodations, I will make individual arrangements.

Respect for Diversity

It is my intent that students from diverse backgrounds and perspectives be well-served by this course, and that the diversity that students bring to this class be viewed as a resource. Please let me know ways to improve the effectiveness of the course for you, personally, or for other students or student groups. As a student in this class, you are required to treat other members of the class with respect and kindness. Disrespectful, rude, or exclusive behavior will not be tolerated.

GRADES

Category	Item	Details	%
SimUText Readings		various dates	10
Lecture Exams			
	Exam 1	Oct. 9; Unit 1 material	15
	Exam 2	Nov. 13; Unit 2 material	15
	Final Exam	Dec. 17; 66% Unit 3; 34% Units 1&2	20
Laboratory			
	Data Sheets	Sept. 24	5
	Data Appendix	Oct. 8	5
	Lightning Talk	Nov. 5	10
	Research Poster Draft	Dec. 3	5
	Research Poster Final	Dec. 10	10
	Peer Feedback	various dates	5
			Total 100

SIMUTEXT READINGS are from the interactive textbook for this class, and each module has integrated, feedback-focused questions followed by a series of graded questions. **You are expected to have read that day's SimUText material prior to coming to class.**

SimUText graded questions are due by 10:00pm on the due date, which is usually Friday (see schedule). You may work through the SimUText material with your peers; however, mastering the material is your individual responsibility.

LECTURE EXAMS will be of variable format, including—but not limited to—multiple choice, true/false, matching, short answer, and brief essays. All exams will be somewhat cumulative but will primarily focus on the associated lecture and SimUText Unit material (see table above); in addition, the final exam will be one-third cumulative.

Percentage	Grade
≥ 93	A
90-92.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
60-66.9	D
< 60	F

LABORATORY grades will be based around a semester-long group research project that will begin with collecting data in the field, continue with data entry, organization, and analysis, and culminate in oral and written presentations.

- Data sheets will be completed in the field during each of the first 5 labs. All data sheets will be due by end of the fifth lab, although I recommend that you hand in your datasheets at the end of each lab. I also highly recommend scanning in datasheets with your phone and emailing them to all group mates at the end of each lab.
- Data appendix will be an html document that includes summary statistics about each of the variables relevant to your research project and dataset. A template and further explanation will be provided later in the semester.
- Lightning talks will be given during lab. Your group will be allowed 3 slides and 5 minutes to present the main goal, result, and conclusion of your research project. You will be providing feedback to other groups, which will go toward your “Peer Feedback” grade, and you will be expected to incorporate feedback into your final poster presentation.
- Research poster must include title, introduction, methods, results, discussion, conclusions, and literature cited. A rubric for posters will be provided later this semester. Every group will present their poster draft in the penultimate lab session. You will be providing feedback to other groups on their posters, which will go towards your “Peer Feedback” grade, and you will be expected to incorporate feedback into your final poster.
- The final (virtual) research poster presentation will be open to friends and family outside of the class.
- Your peer assessment grade will include the quality of your formal feedback during the lightning talks and the draft poster presentation (33% each) and the grade that your group mates give you at the culmination of the semester (34%).

PARTICIPATION in class and lab will not go towards your grade directly. However, a record throughout the semester of exemplary participation and attendance can help in the case of a borderline final grade. Active participation also nurtures learning, and will improve the quality of future recommendation letters from your instructors.

Academic Integrity

Academic misconduct includes but is not limited to:

- cheating: using a resource other than one's own work to answer questions;
- plagiarism: misrepresenting another's ideas as one's own or not giving credit to the creator of a work;
- falsification: submitting falsified or fabricated information;
- facilitating others' violations: knowingly permitting or facilitating the dishonesty of others;
- impeding: placing barriers in the way of others' academic pursuits"

As a student at St. Cloud State University and as a student in this class, you are expected to fully and properly acknowledge the work of others. Every instance of plagiarism will be reported, as per the policies of the college, but please do not hesitate to ask me in advance if you think something might be questionable or if you are unsure about what is considered to be plagiarism. I am happy to help, as long as you inquire in advance!

Course Schedule (version dated 8/14/2020)

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<div>Aug 24th</div> First day of class	25th	26th Topic: Introduction to Ecology	27th Lab: Guided tour	28th Topic: Experimental Design <i>SimUText Unit 1: Understanding Experimental Design Due 10pm</i>
31st Topic: Evolution for Ecology 1	<div>Sep 1st</div>	2nd Topic: Evolution for Ecology 2	3rd Lab: Macroinvertebrate Survey	4th Topic: Evolution for Ecology 3 <i>SimUText Unit 1: Evolution for Ecology 1-3 due 10pm</i>
7th <i>No class</i>	8th	9th Topic: Biogeography 3	10th Lab: Pollinator Survey	11th Topic: t-test, ANOVA, regression <i>SimUText Unit 1: Biogeography 3 due 10pm</i>

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
14th Topic: Behavioral Ecology 1-2	15th	16th Topic: Behavioral Ecology 3-4	17th Lab: Prairie Diversity Survey	18th Topic: Behavioral Ecology 5 <i>SimUText Unit 1: Behavioral Ecology 1-5 due 10pm</i>
21st Topic: Biogeography 4, Physiological Ecology 1	22nd	23rd Topic: Biogeography 4, Physiological Ecology 1 (cont.)	24th Lab: Forest Survey	25th Topic: Physiological Ecology 2 <i>SimUText Unit 1: Biogeography 4, Physiological Ecology 1-2 due 10pm</i>
28th Topic: Physiological Ecology 3	29th	30th Exam 1	Oct 1st Lab: Introduction to R & How Diseases Spread <i>SimUText Lab: How Diseases Spread due 10pm</i>	2nd Topic: Physiological Ecology 4 <i>SimUText Unit 1: Physiological Ecology 3-4 due 10pm</i>
5th Topic: Ecosystem Ecology 1-2	6th	7th Topic: Ecosystem Ecology 3	8th Lab: Data Appendix due 10pm (OSF)	9th <i>No class</i>
12th Topic: Ecosystem Ecology 1-2	13th	14th Topic: Ecosystem Ecology 3	15th Lab: Data analysis	16th Topic: Ecosystem Ecology 4 <i>SimUText Unit 1: Ecosystem Ecology 1-4 due 10pm</i>
19th	20th	21st	22nd	23rd
26th	27th	28th	29th	30th

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Nov 2nd	3rd	4th	5th	6th
9th	10th	11th	12th	13th
16th	17th	18th	19th	20th
23rd	24th	25th	26th	27th
30th	Dec 1st	2nd	3rd	4th
7th	8th	9th	10th	11th