2021 Syllabus for BIOL 312: General Ecology

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

Meeting ID: 965 4465 0556 Passcode: ecology

Lab: Tuesday 2:00–4:50 pm, Wick 287

Instructor: Dr. Althea A. Archer
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Virtual Office Hours: Mon 12:00pm–2:00pm & Th 1:00–2:00pm
Office Hour Link: https://minnstate.zoom.us/j/98128037816
Meeting ID: 981 2803 7816 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
- Each person must sign up for an account with the free Open Science Framework at https://osf.io/
- Recommended: McMillan, V.E. 2012+. *Writing Papers in the Biological Sciences*. Bedford/St. Martin's
- Recommended: Molles, Jr., M.C. *Ecology: Concepts and Applications*.

CONTACT ME: The best ways to get ahold of me are by visiting my virtual office hours or by emailing me. I will always try to get back to emails within 48 hours. I get a lot of emails, so please begin emails with "BIOL 312" so that I can prioritize your email. Also, I included my personal cell phone number above so that you can get ahold of me during lab if there is an emergency.

REGULAR ATTENDANCE AND PARTICIPATION IN CLASS IS CRITICAL TO YOUR SUCCESS. This course will be offered in a hybrid format. Lectures will be convened online via synchronous Zoom meetings, and the textbook assignments will be conducted through an interactive online textbook. Lectures slides and videos will be posted to D2L. The first five labs will require in-person activities in an outdoor setting. You will be working with small groups during each lab.

In order to have an excused absence, you must notify me prior to the beginning of class of your absence.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES: SCSU is an affirmative action, equal opportunity employer and educator. We are committed to a policy of nondiscrimination in employment and education opportunity and work to provide reasonable accommodations for all persons with disabilities. Accommodations are provided on an individualized, as-needed basis, determined through appropriate documentation of need. Please contact Student Accessibility Services (SAS), sas@stcloudstate.edu or 320-308-4080, Centennial Hall 202, to meet and discuss reasonable and appropriate accommodations.

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. Diverse perspectives are welcome and disagreeing is fine. However, disrespectful, rude, or exclusive behavior will not be tolerated.

GRADES

Category	Item	Details	points	%
Assignments	Participation	55 x 1pt each; drop lowest 5	50	5.0%
	SimUText Readings	35 x 2pts each	70	7.0%
	Reading Quizzes	37 x 2pts each; drop lowest 2	70	7.0%
Lecture Exams	Exam 1	Sept. 29; Unit 1 material	140	14.0%
	Exam 2	Nov. 5; Unit 2 material	140	14.0%
	Final Exam	Dec. 15; 78% Unit 3; 22% Units 1&2	180	18.0%
Laboratory	Data Sheets	Aug. 24, 31, Sept. 7, 14, 21	50	5.0%
	Data Appendix	Oct. 5	25	2.5%
	Lightning Talk	Nov. 2	100	10.0%
	Research Poster Draft	Nov. 16	50	5.0%
	Research Poster Final	Nov. 30	100	10.0%
	Peer Feedback	various dates	25	2.5%
Total			1000	100.0%

PARTICIPATION will be determined by your completion of zoom polls, surveys, and/or homework assignments that will pop up during Zoom lectures and labs. Each of these activities will be graded on a pass/fail basis, and you automatically will get 6 free missed participation scores.

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, and will be quizzed on each reading assignment.

You will be graded for **reading completion** (but not on the graded questions) based on the proportion of the reading completion questions you have filled out for each Unit's SimUText sections by 11:30pm the night before exam review sessions.

SimUText reading completion will be graded for each unit by:

- September 26 at 11:30pm for Unit 1 material
- November 2 at 11:30pm for Unit 2 material
- December 9 at 11:30pm for Unit 3 material

You may work through the SimUText material with your peers; however, mastering the material is your individual responsibility. Use the graded questions as a tool to check your understanding. They will not be graded. Your lowest 1 SimUText grades will be automatically dropped.

Percentage	Grade
≥ 99	A+
92-98.9	A
90-91.9	A-
89-89.9	B+
82-88.9	B
80-81.9	B-
79-79.9	C+
72-78.9	C
70-71.9	C-
69-69.9	D+
60-68.9	D
< 60	F

READING QUIZZES will be very short, low-stakes checks to make sure you're staying up-to-date on reading assignments. They will be conducted at the beginning of each Zoom lecture and implemented with Zoom polls. See the schedule for specific material for each day's quiz. Your lowest 3 quiz scores will be automatically dropped. If you have more than 3 excused absences over the course of the semester, I will provide alternate assignments to replace missing quiz grades.

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 ∼22% cumulative. Exams will be proctored through D2L.

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.

- Guided data sheets will be completed in the field during the first 5 labs due by end of lab each day.
- 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. I will provide a grading rubric later this semester.

- 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, which will go towards your "Peer Feedback" grade, and you will be expected to incorporate feedback into your final poster.
- The final 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, 66% total) combined with the grade that your group mates give you at the culmination of the semester (34%).

St. Cloud's Statement on Covid-19

Given the increased transmission of COVID-19 variants, such as the delta variant, and the risk it poses to the entire community, (see CDC "Delta Variant: What We Know About the Science") we will be adhering to the following masking policies in our classroom:

- You must wear a face mask/covering in our classroom at all times.
- If you are unable to wear a face mask or covering for medical reasons, please contact the Student Accessibility Services Office for an accommodation.
- I encourage you to wash your hands frequently and use the hand sanitizers available to you.
- If you are not feeling well, be sure to call the SCSU Medical Clinic for assistance at (320) 308-3193 or email myhealthservices@stcloudstate.edu
- If you are concerned that you might have COVID-19, please get tested as soon as possible. Testing resources are available on campus through the SCSU Medical Clinic and through the State of Minnesota's Vault: No-Cost COVID Testing For All Minnesotans

Academic Integrity

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!

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'

Instances of academic dishonesty will result in either a failing grade for that activity or for the course, according to the perceived intent and extent of the instance(s) of academic dishonesty. All academic integrity violations will be reported.

Course Schedule (version dated August 18, 2021)

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Aug 23rd **Topic:** Photo descriptions *Reading Quiz: Survey (pass/fail)*	24th **Lab:** Campus Tour & Intro to Experimental Methods *Due: Data Sheet 1*	25th **Topic:** Introduction to Ecology *Reading Quiz: Syllabus*	26th	27th **Topic:** Introduction to Ecology *Reading Quiz: Biogeography 1*
30th **Topic:** Evolution for Ecology *Reading Quiz: Evolution 1*	31st **Lab:** St. John's Arboretum *Due: Data Sheet 2*	Sep 1st **Topic:** Evolution for Ecology *Reading Quiz: Evolution 2*	2nd	3rd **Topic:** Evolution for Ecology *Reading Quiz: Evolution 3*
6th *No class*	7th **Lab:** Rockville County Park *Due: Data Sheet 3*	8th **Topic:** Evolution for Ecology *Reading Quiz: Biogeography 3*	9th	10th **Topic:** Behavioral Ecology *Reading Quiz: Behavior 1*
13th **Topic:** Behavioral Ecology *Reading Quiz: Behavior 2*	14th **Lab:** Kraemer Lake Park *Due: Data Sheet 4*	15th **Topic:** Biome Ecology *Reading Quiz: Biogeography 4*	16th	17th **Topic:** Biome Ecology *Reading Quiz: Physiology 1*
20th **Topic:** Physiological Ecology *Reading Quiz: Physiology 2*	21st **Lab:** Warner Lake Park *Due: Data Sheet 5*	22nd **Topic:** Physiological Ecology *Reading Quiz: Physiology 3*	23rd	24th **Topic:** Physiological Ecology *Reading Quiz: Understanding Experimental Design*
27th **Topic:** Wrap-up and review *No Reading Quiz*	28th **Lab:** Experimental Design	29th **Exam 1**	30th	Oct 1st **Topic:** Primary Productivity *Reading Quiz: Physiology 4*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
4th **Topic:** Primary Productivity *Reading Quiz: Ecosystems 1-2*	5th **Lab:** Open Lab *Due: Data Appendix*	6th **Topic:** Secondary Productivity *Reading Quiz: Ecosystems 3-4*	7th	8th **Topic:** Secondary Productivity *Reading Quiz: Community 3-4*
11th **Topic:** Nutrient Ecology *Reading Quiz: Nutrients 1-2*	12th **Lab:** Data Analysis	13th **Topic:** Nutrient Ecology *Reading Quiz: Nutrients 3*	14th	15th **Topic:** Nutrient Ecology *Reading Quiz: Nutrients 4*
18th **Topic:** Life History *Reading Quiz: Life History 1-2*	19th **Lab:** Open Lab	20th **Topic:** Life History *Reading Quiz: Life History 3*	21st	22nd **Topic:** Life History *Reading Quiz: Life History 4*
25th **Topic:** Population Growth *Reading Quiz: Population Lab*	26th **Lab:** Presentation Skills	27th **Topic:** Population Growth *Reading Quiz: Populations 1*	28th	29th **Topic:** Population Growth *Reading Quiz: Populations 2*
Nov 1st **Topic:** Population Growth *Reading Quiz: Populations 3*	2nd **Lab:** Lightning Talks *Due: Lightning Talk Slides*	3rd **Topic:** Wrap-up and review *No Reading Quiz*	4th	5th **Exam 2**
8th *No class*	9th **Lab:** Open Lab	10th **Topic:** Succession *Reading Quiz: Community 1-2*	11th	12th **Topic:** Competition *Reading Quiz: Competition 1*
15th **Topic:** Competition *Reading Quiz: Competition 2*	16th **Lab:** Draft Poster Presentation *Due: Draft Poster*	17th **Topic:** Competition *Reading Quiz: Competition 3*	18th	19th **Topic:** Competition *Reading Quiz: Keystone Predator*
22nd *No class*	23rd *No class*	24th *No class*	25th *No class*	26th *No class*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
29th **Topic:** Exploitation *Reading Quiz: Exploitation 1*	30th **Lab:** Open Lab *Due: Final Poster for printing*	Dec 1st **Topic:** Exploitation *Reading Quiz: Exploitation 2*	2nd	3rd **Topic:** Exploitation *Reading Quiz: Exploitation 3*
6th **Topic:** Island Biogeography *Reading Quiz: Biogeography 2*	7th **Lab:** Final Poster Session	8th **Topic:** Island Biogeography *Review quiz*	9th	10th **Topic:** Review *No reading quiz*
13th	14th	15th **FINAL EXAM** 9:55am - 12:10pm	16th	17th