Syllabus for Biology 312: General Ecology
Spring 2022

Lecture: Monday/Wednesday/Friday 9:00am–9:50am
Meeting ID: 999 2844 8285
Passcode: ecology

Lab: Monday 2:00-4:50pm

Instructor: Dr. Althea A. Archer
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Virtual Office Hours: Tues & Friday 10:00am–11:00am
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 for you to be able to:

1. Apply the scientific method to experimental problems in ecology.
2. Calculate measures of population growth and biodiversity indices.
3. Summarize principles of behavioral ecology, population ecology, community ecology, physiological ecology, and ecosystem ecology.
4. Generate experimental hypotheses and carry out ecological research experiments, including correct data analysis and conclusions.
5. Compare characteristics of aquatic and terrestrial environments, and explain the abiotic principles that determine those characteristics.
6. Analyze the adaptations and responses living organisms have to their environment.

Required Textbooks

- SimUText Ecology
- Recommended: McMillan, V.E. 2012. *Writing Papers in the Biological Sciences.* Bedford/St. Martin's
- Recommended: Molles, Jr., M.C. *Ecology: Concepts and Applications.* (Posted in Content on D2L)

Email Policy

CONTACT ME: The best way to get ahold of me is by visiting my virtual office hours or by emailing me. I will always try to get back to emails within 24 hours, or 48 hours if it is a weekend. 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.

Attendance Policy

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 will be posted to D2L. The last few labs will require in-person activities in an outdoor setting. You will be working with small groups during each in-person lab, and you will be required to wear a mask and maintain physical distancing.

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

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 5 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.

Category	Item	Details	points	%
Assignments	Participation	55 x 2pts each; drop lowest 5	100	10.0%
	SimUText Readings	2pts each	70	7.0%
	Reading Quizzes	38 x 2pts each; drop lowest 3	70	7.0%
Lecture Exams	Exam 1	Feb. 17; Unit 1 material	140	14.0%
	Exam 2	Apr. 2; Unit 2 material	140	14.0%
	Final Exam	May 3; 78% Unit 3; 22% Units 1&2	180	18.0%
Laboratory	Field Journals	Apr. 11, 18, 25	75	7.5%
	Literature List	Jan. 10	10	1.0%
	Annotated Bibliography	Jan. 26	20	2.0%
	Methods Section	Feb. 9	25	2.5%
	Data Plan Section	Feb. 23	20	2.0%
	Expected Outcomes Section	Mar. 16	25	2.5%
	Presentation	Mar. 30	25	2.5%
	Research Proposal	Apr. 13	100	10.0%
Total			1000	100.0%

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

You will be graded for **reading completion** (not 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 Sunday night before exam review sessions.

SimUText reading completion will be graded for each unit by:

- February 13 at 11:30pm for Unit 1 material
- March 29 at 11:30pm for Unit 2 material
- April 28 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.

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 $\sim$22% cumulative. Exams will be proctored through D2L.

LABORATORY grades will be based around the iterative, semester-long development of a group research proposal and field notes taken during three outdoor field experiences. Some components will be independent, and some in groups. Lab assignments are due by 10pm on the due date, or at the end of labs for field notes.

A full description of the assignment and its components will be shared in lab. This is an overview:

- Field Journals will be completed in the field during the last 3 labs and are due by end of lab each day.
- Literature List: independently developed list of 5 properly-cited sources around a specific topic
- Annotated Bibliography: independently developed list of 3 properly-cited sources with a summary of each
- Methods Section: group-written description of proposed methods, including executive summary of research objectives and hypotheses
- Data Plan Section: group-written description of proposed data plan, including data sheet
- Expected Outcomes Section: group-written description and graphs/tables demonstrating what results would look like if biological hypothesis were supported as well as what results would look like if null hypothesis were not rejected
- Presentation: group presentation of research proposal
- Research Proposal: group-written document including introduction, objectives/hypotheses, methods, data plan, expected outcomes, and bibliography (non-annotated)

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 January 10, 2022)

Join Zoom Meeting https://minnstate.zoom.us/j/99928448285
Meeting ID: 999 2844 8285 Passcode: ecology

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Jan 10th **Topic:** Photo descriptions *Reading Quiz: Survey (pass/fail)* **Zoom Lab:** Searching for literature *Due: Literature List*	11th	12th **Topic:** Introduction to Ecology *Reading Quiz: Syllabus*	13th	14th **Topic:** Introduction to Ecology *Reading Quiz: Biogeography 1*
17th *No class*	18th	19th **Topic:** Evolution for Ecology *Reading Quiz: Evolution 1*	20th	21st **Topic:** Evolution for Ecology *Reading Quiz: Evolution 2*
24th **Topic:** Evolution for Ecology *Reading Quiz: Evolution 3* **Zoom Lab:** Measuring Biodiversity	25th	26th **Topic:** Evolution for Ecology *Reading Quiz: Biogeography 3*	27th	28th **Topic:** Behavioral Ecology *Reading Quiz: Behavior 1*
31st **Topic:** Behavioral Ecology *Reading Quiz: Behavior 2* **Zoom Lab:** Open Lab *Due: Annotated Bibliography*	Feb 1st	2nd **Topic:** Behavioral Ecology *Reading Quiz: Understanding Experimental Design*	3rd	4th **Topic:** Biomes *Reading Quiz: Biogeography 4*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
7th **Topic:** Biomes *Reading Quiz: Physiology 1* **Zoom Lab:** Experimental Design	8th	9th **Topic:** Adaptations *Reading Quiz: Physiology 2*	10th	11th **Topic:** Homeostasis *Reading Quiz: Physiology 3*
14th **Topic:** Review Unit 1 *No reading quiz* **Zoom Lab:** Open Lab *Due: Methods Section*	15th	16th **Exam 1**	17th	18th **Topic:** Primary Productivity *Reading Quiz: Physiology 4*
21st **Topic:** Primary Productivity *Reading Quiz: Ecosystem 1-2* **Zoom Lab:** Data Skills	22nd	23rd **Topic:** Secondary Productivity *Reading Quiz: Ecosystem 3-4*	24th	25th **Topic:** Secondary Productivity *Reading Quiz: Community 3-4*
28th **Topic:** Nutrient Ecology *Reading Quiz: Nutrients 1-2* **Zoom Lab:** Open Lab *Due: Data Plan Section*	Mar 1st	2nd **Topic:** Nutrient Ecology *Reading Quiz: Nutrients 3*	3rd	4th **Topic:** Nutrient Ecology *Reading Quiz: Nutrients 4*
7th *Spring break*	8th *Spring break*	9th *Spring break*	10th *Spring break*	11th *Spring break*
14th **Topic:** Life History *Reading Quiz: Life History 1-2* **Zoom Lab:** Data Analysis	15th	16th **Topic:** Life History *Reading Quiz: Life History 3*	17th	18th **Topic:** Life History *Reading Quiz: Life History 4*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
21st **Topic:** Population Growth *Reading Quiz: Population Growth Lab* **Zoom Lab:** Open Lab *Due: Expected Outcomes Section*	22nd	23rd **Topic:** Population Growth *Reading Quiz: Popn Growth 1*	24th	25th **Topic:** Population Growth *Reading Quiz: Popn Growth 2*
28th **Topic:** Population Growth *Reading Quiz: Popn Growth 3* **Zoom Lab:** Presentation Skills	29th	30th **Topic:** Review *No reading quiz*	31st	Apr 1st **Exam 2**
4th **Topic:** Succession *Reading Quiz: Community 1-2* **Zoom Lab:** Presentations *Due: Presentations*	5th	6th **Topic:** Competition *Reading Quiz: Competition 1*	7th	8th **Topic:** Competition *Reading Quiz: Competition 2*
11th **Topic:** Competition *Reading Quiz: Competition 3* **Field Lab:** Navigation at Riverside Park *Due: Field Journal 1*	12th	13th **Topic:** Competition *Reading Quiz: Competition 4*	14th	15th *no class* *Due: Research Proposal*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
18th **Topic:** Exploitation *Reading Quiz: Exploitation 1* **Field Lab:** Plant community survey at Heritage Park *Due: Field Journal 2*	19th	20th **Topic:** Exploitation *Reading Quiz: Exploitation 2*	21st	22nd **Topic:** Exploitation *Reading Quiz: Exploitation 3*
25th **Topic:** Exploitation *Reading Quiz: Exploitation 4* **Field Lab:** Water survey at Warner Lake Park *Due: Field Journal 3*	26th	27th **Topic:** Island Biogeography *Reading Quiz: Biogeography 2*	28th	29th **Topic:** Review *No reading quiz*
May 2nd **FINAL EXAM 7:30am - 9:45am**	3rd	4th	5th	6th