2020 Syllabus for Biology 312: General Ecology

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

Lab: Thursday 8-10:50

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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. Access, critically evaluate, and correctly use scientific literature
2. Classify organizational levels observed in ecology
3. Explain how populations are regulated and how data can be collected, analyzed, and interpreted using statistics, life tables, graphs, and survivorship curves
4. Describe the interactions between different species and how they impact one another
5. 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
6. Discuss patterns and measurements of biodiversity and predict the consequences of continued species loss
7. Accurately and effectively document field observations with field notes and data collection
8. Link field observations with key ecological concepts and relevant scientific literature
9. Execute the scientific method using reproducible research methods
10. 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

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.

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.

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	Completion & Graded Questions	Various dates	10
Exams & Quizzes			
	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		*see laboratory syllabus*	30
			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). The two lowest SimUText grades will be dropped.

Graded Questions will be worth another 5% of your final grade; however, the two lowest scores will be dropped before final grades are completed. You may work through the SimUText material with your peers; however, mastering the material is your individual responsibility.

Percentage	Grade
≥ 94	A
90-93.9	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

QUIZZES are designed to quickly check for reading and comprehension of that lecture date's SimUText material. Quizzes will be short ($\sim$3 questions) and given at the beginning of class time on most days. I will drop the two lowest quiz scores.

*In addition, I will make homework available for students that have excused absenses. If you have an excused absense (thus a 0 for that quiz), you may—up to 3 times over the course of the semester—complete homework to replace a zero quiz score. The homework assignments will be designed to give you more hands-on practice with quantitative topics covered in lecture and in the SimUText readings; however, they will be more difficult than quizzes.

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 SimUText Unit material (see table above); in addition, the final exam will be one-third cumulative.

GROUP DISCUSSIONS allow you to work as a team of scientists with your colleagues to critically discuss readings related to class material. Group discussions will occur in person and through a forum format on Moodle. You will be graded based on the quantity, quality and timing of your comments (see specifics below). Each discussion is worth a total of 5 points.

On the discussion day, you will be expected to have read the assigned pages and submit one question to the Moodle forum (1.5 points, pass/fail). We will then discuss the material in that day's class. After reflecting on our in-class discussion, you will need to respond to *at least* one other student's question on the Moodle forum (1.5 points, pass/fail). The quality of your question and responses will be worth 2 points, as shown in grading rubric below.

Every student is responsible for engaging in a good discussion, through which we should all be able to come to a better understanding of ecology and evolution. You should take this opportunity to learn from and respectfully teach each other.

Grading Criteria	**Exemplary**	**Adequate**	**Poor**
Quality of Comments	Focused on ecological aspects and tackled central themes of reading	Indicated a superficial understanding of reading or focused on details w/o conveying importance to ecology or main themes of text	Conveyed little understanding of reading; not relevant to ecology or main themes of text
	(2pts)	(1.5pts)	(1pt)

THE SYMPOSIUM PAPER is a 3-page, 1.5-spaced, 12-pt font paper, that is due at 11:55pm on Wednesday, September 25 (upload on Moodle). The 2019 Symposium, Speech: Freedom vs. Responsibility, takes place on September 17–18, and you are required to attend. The Symposium Paper should name and summarize the session you attended, including questions/answers raised during the Q/A of the session, and your reaction. At least one page of your paper should explore how the symposia relate to ecology, the environment, campus life or the scientific process. You will be graded out of 100 points based on the following (detailed rubric is on Moodle):

- Spelling and grammar (20pts)
- Summary of session and Q/As (40pts)
- Relation of session topic to campus life and science (40pts)

Academic Integrity (from Student Handbook)

"The Concordia community expects all of our members to act with integrity–to act with honesty, uprightness and sincerity. Every member of our academic community is charged with the responsibility of encouraging and maintaining an environment of academic integrity.

Concordia College has university-wide policies about academic integrity, and all students are responsible for being familiar with and adhering to them. These policies are in place to protect students, first and foremost. **My role as instructor is to teach each of my students how to become responsible scholars.**

"Academic misconduct is defined as any activity that comprises the academic integrity of the college or undermines the educational process. 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 Concordia College 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!

Biology Department policy on use of electronic devices (phones, smart watches, laptops, tablets, etc.)

Faculty in the Biology Department work to make the classroom and laboratory a space conducive to student learning. We encourage writing notes by hand because it is an effective learning strategy for many students. However, the Biology Department also understands the valuable role of electronic devices in learning and scholarship. Thus, the Biology Department policy on the use of these devices in the classroom is as follows:

1. Electronic devices used during class time should be limited to appropriate class-related activities as outlined by the instructor. We reserve the right to check devices at any time and to ask you to put them away or leave if we see you using them inappropriately. Please reduce distractions to yourself and your fellow classmates.
2. All electronic devices must be set to silent during scheduled classroom and laboratory sessions. Tones and vibrations are distracting.
3. Only approved electronic devices (such as non-programmable calculators) may be available or used during examination periods. We expect that all non-approved electronic devices, including smart watches, will be turned off and stored away from the exam areas.
4. Sharing calculators during exams is not allowed without permission.
5. Cheating in any form, including through use of an electronic device, will not be tolerated. See the academic integrity policy for more information.

Inappropriate or distracting use of electronic devices in the classroom may adversely affect your course grade.

Course Schedule (version dated 8/6/2019)

- SimUText Sections: You are expected to come to class prepared by reading that lecture's associated SimUText Module. There will be quizzes on reading material at the beginning of lecture.
- Discussion: In-class discussion days. You will be graded based on your participation and are expected to post at least one question to Moodle by the start of class that day.
- Response: Responses to other students' questions are due on the Moodle forum by 11:55pm.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Sep 2nd First day of class	3rd	4th SimUText Unit 1: Evolution for Ecology 1 **Discussion:** Beak of the Finch ch4	5th	6th **Response:** Beak of the Finch ch4
9th SimUText Unit 1: Evolution for Ecology 2-3	10th	11th SimUText Unit 1: Biogeography 3-4	12th *Dr. ArchMiller out of town, no office hours*	13th *Dr. ArchMiller out of town*
16th Library Materials Lecture in Library classroom **Discussion:** Sixth Extinction ch5	17th	18th **Symposium** No office hours	19th	20th **Response:** Sixth Extinction ch5 **Library Materials assignment due** on Lab Moodle page by 11:55pm
23rd SimUText Unit 1: Physiological Ecology 1-2	24th	25th SimUText Unit 1: Physiological Ecology 3-4 **Symposium Paper due** on Moodle by 11:55pm	26th	27th

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
30th SimUText Unit 1: Ecosystem Ecology 1-3 *Dr. ArchMiller out of town, no office hours*	Oct 1st *Dr. ArchMiller out of town, no office hours*	2nd SimUText Unit 1: Climate Change 1-2 **Discussion:** Sand County Almanac *Dr. ArchMiller out of town, no office hours*	3rd *Dr. ArchMiller out of town, no office hours*	4th **Response:** Sand County Almanac
7th SimUText Unit 1: Climate Change 3-5 **Unit 1 SimUText Graded Questions Due at 8am**	8th	9th **EXAM 1**	10th	11th
14th SimUText Unit 2: Nutrient Cycling 1-2 **Discussion:** Omnivore's Dilemma	15th	16th SimUText Unit 2: Nutrient Cycling 3-4 **Response:** Omnivore's Dilemma	17th	18th
21st *Mid Semester Break–No Class*	22nd *Mid Semester Break–No Class*	23rd *Mid Semester Break–No Class*	24th *Mid Semester Break–No Class*	25th *Mid Semester Break–No Class*
28th SimUText Unit 2: Life History 1-2	29th	30th SimUText Unit 2: Life History 3-4 **Discussion:** Serengeti ch 1-2	31st	Nov 1st **Response:** Serengeti Rules ch 1-2

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
4th SimUText Unit 2: Population Growth 1-3 **In Class:** Understanding Population Growth Models	5th	6th SimUText Unit 2: Population Growth 4-5 **Discussion:** Serengeti ch 3-5	7th	8th **Response:** Serengeti Rules ch 3-5
11th SimUText Unit 2: Biogeography 1-2 **Unit 2 SimUText Graded Questions Due at 8am**	12th	13th **EXAM 2**	14th	15th
18th SimUText Unit 3: Community Dynamics 1-2	19th	20th SimUText Unit 3: Community Dynamics 3-5 **Discussion:** Serengeti ch 6-8	21st	22nd **Response:** Serengeti Rules ch 6-8
25th SimUText Unit 3: Competition 1-2	26th	27th *Thanksgiving*	28th *Thanksgiving*	29th *Thanksgiving*
Dec 2nd SimUText Unit 3: Competition 3-4	3rd	4th SimUText Unit 3: Predation, Herbivory and Parasitism 1-2 **Discussion:** Serengeti ch 9-10	5th	6th **Response:** Serengeti Rules ch 9-10
9th SimUText Unit 3: Predation, Herbivory and Parasitism 3-4	10th	11th **Unit 3 SimUText Graded Qs Due at 8am**	12th	13th
16th	17th **FINAL EXAM 8:30-10:30am**	18th	19th	20th