Ecology

BIOL2220 & BIOL 2225

Instructor Information

Email:
Phone:
Office Location:
Office Hours

Course Prerequisites

Prereq: BIOL 1610 w/C grade or better. Coreq: BIOL 2220/2225.

Course Description

Prereq: BIOL 1610 w/C grade or better. Coreq: BIOL 2220/2225. For biology/science majors. Intro to ecological and evolutionary principles, including: population interactions, ecosystem structure/function, energy flow, and biogeography. Three hours of lecture per week and additional lab component (BIOL 2225) required.

Semester: Spring For biology/science majors. Intro to ecological and evolutionary principles, including: population interactions, ecosystem structure/function, energy flow, and biogeography. Three hours of lecture per week and additional lab component (BIOL 2225) required.

Course Learning Outcomes

In order to full-fill the goals of the College-wide Learning Outcomes, the following course learning outcomes of been established for this course. Upon completion of this course a person educated in Ecology should be able to demonstrate a general understanding of the following essential learning outcomes. Students will

- Describe the fundamental patterns and processes of populations, communities, ecosystems and the biosphere, both as they occur naturally and as they have been impacted by humans.
- Explain basic principles and applications of ecological theory and the evidence that supports them, such as the Theory of Evolution, the Principle of Allocation, the Competitive Exclusion Principle, and the Equilibrium Model of Island Biogeography.
- Utilize ecological models in order to analyze data and make predictions.
- Analyze the ecological connection among abiotic factors (such as climate and nutrient levels) and biotic factors
- Identify and explain the abiotic factors most important in shaping ecosystems.
- Describe various ecological responses, adaptations and strategies employed by organisms.
- Explain how matter and energy move through ecosystems.

Course Presentation

This is not exclusively an in-person lecture course. You will be expected to watch videos and read content for each chapter on the course's Canvas site that will complement and sometimes supplement the reading in the textbook chapters. Students are expected to have a good understanding of chapter materials PRIOR to class sessions because each class will focus on case studies and data interpretation and analysis with an assumption of knowledge from the chapter. These class meetings will also be the time to ask questions and clarify any misunderstandings from the chapter readings and recorded lectures. This should be a very relevant and exciting course, especially if you are prepared and contribute to the class discussions and assignments. Additionally, the lab

component will require that you take measurements outside. Some of the measurements will be done as a group while others will be done independently. The location you choose for your independent data collection will be up to you as long as you are able to take the necessary measurements safely.

Required Textbook or Materials

Title: Ecology
ISBN: 1605359211
Authors: Bowman and Hacker
Edition: 5th

For more information on textbook accessibility, contact Accessibility & Disability Services at ads@slcc.edu.

College Wide Student Learning Outcomes

SLCC has identified nine essential capacities all students should strengthen, regardless of academic major or career plans, that will serve students in all aspects of life.

- Acquire substantive knowledge in the intended major and throughout General Education
- Communicate effectively
- Develop quantitative literacies necessary for the chosen field of study
- Think critically
- Express themselves creatively
- Develop civic literacy and the capacity to be community-engaged learners who act in mutually beneficial ways with community partners
- Develop the knowledge and skills to work with others in a professional and

constructive manner

- Develop information literacy
- Develop computer literacy

Course Learning Environment

My hope is that all of us together will create a learning environment that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.) To help accomplish this:

- No discrimination is tolerated based on anyone's race, gender, sexuality, religion, abilities, English language proficiency or socio-economic circumstances. Please always choose kindness and patience in our class communications, there is space for all of us here.
- If you have a name and/or set of pronouns that differ from those that appear in your Canvas handle, please let me know so I can address everyone in a way that makes them feel comfortable and safe.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in any of the class materials and discussions (by anyone) that made you feel uncomfortable, please talk to me about it.
- If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to let me know and request extra time on your course work. I want to be a resource for you and help you learn these materials without adding to anyone's level of stress and I promise to treat everyone with compassion.

General Course Policies

Syllabus: This syllabus represents an “agreement” between you the student and the instructor. It is designed to insure course integrity and fairness as well as provide students with a clear understanding of course expectations. The instructor and students are expected to use the syllabus and schedule as a guide for the semester. Any deviation from the syllabus or schedule will be discussed and agreed upon by the instructor and students.

Attendance: Participation in the lecture course’s Canvas site during the first two weeks of Spring Semester is MANDATORY. If you are not in attendance the first two weeks you WILL be dropped from the lecture and lab. However, do not assume that I will drop you from the course. IT IS YOUR RESPONSIBILITY TO DROP THE COURSE. DO NOT ASSUME THAT YOU WILL BE DROPPED FROM THE COURSE AND GET YOUR MONEY BACK IF YOU DO NOT PARTICIPATE. You must drop the course by the drop deadline in order to receive a full refund. If you fail to drop the course by then, you have had access to a large amount of the course material, you have potentially taken a spot another student would have used and you will be charged for the semester.

Academic Integrity: Academic Dishonesty is absolutely NOT tolerated and includes all forms of cheating and plagiarism as outlined in the Code of Student Rights and Responsibilities and outlined here. There is NO tolerance for dishonesty. Academic dishonesty includes but is not limited to: giving other students copies of your homework, papers, analyses, etc.; obtaining copies of said work by others; using copies of said work or representing any portion of another person’s work as your own (i.e., plagiarism), accessing answers to lab reports, quizzes and exams from the Internet, completing quizzes or exams with other individuals. You are encouraged to discuss strategies for problem solving, particularly as you complete the chapter worksheets. Giving someone all the answers is a form of academic dishonesty. Working through the problems/strategies together is collaborating and is encouraged. Most students understand the difference, but if you are unsure please ask.

Plagiarism is when you use information, whether by paraphrase or direct quote, from a source (be it published or a classmate) without giving proper credit to that source. Plagiarism or other forms of cheating will not be tolerated in this class, and will be rightly considered as a form of cheating. Ignorance is not an excuse for intellectual infringement. Students must put all answers in their own words.

I am giving you every opportunity to succeed by providing a wealth of structured assignments. Penalty for first academic dishonesty offense will be a grade of “0” on the assignment or exam; second offense will be an “E” for the course. Remember: Winners never cheat, and cheaters never win. Be a winner.

Artificial Intelligence: Generative artificial intelligence (AI) software is a rapidly emerging tool that students may be interested in using. If doing so, SLCC students are expected to adhere to the same standards as the Code of Student Rights and Responsibilities statement on plagiarism. Presenting generative AI software content as your own is a violation of academic integrity. Generative AI is best used to help with summarizing information and providing ideas for paper structure at the beginning of your research and writing. You should not use generative AI in your final work.

Electronic Devices: Computers and other electronic devices are expected to be used for class assignments and can also be used for note-taking and course-related purposes. However, they SHOULD NOT be used during class for working on other tasks (e.g. answer emails, Facebook, other classes etc.). You will be asked to leave if your electronic device disrupts the class in any way. Please read the Netiquette section below.

Due Dates and Late Work Policy: All required assignments/discussions, quizzes, exams and their due dates are given at the beginning of the semester. Due dates reflect the date to turn in an item so that you have the greatest chance of success at the course. Due dates are also established to enable student learning and to allow faculty to grade and return items in a timely manner. If you submit an assignment late, you will likely increase your confusion and stress as well as the time that it takes for me to grade your assignment. Quizzes should be taken prior to class each Monday and Wednesday, labs should be submitted by Sunday at 11:59pm (note some labs will have components due earlier in the week), and chapter worksheets should be submitted by 11:59pm the day of class. While late work will be accepted without penalty for a period after it is due, you MAY NOT submit a quiz or weekly worksheet after the corresponding Mid Term Exam closes.

Drop, Withdraw or Incomplete Grade: Last day to drop from class with refund is January 29th, withdraw without refund is March 19th. A grade of “I” (Incomplete) is at the instructor’s discretion and can be given if a student is facing extenuating circumstances preventing them from finishing the semester. In order to receive an incomplete, most of the course work must be completed (e.g. ~75%) with a passing grade.

SLCC Academic Policies: SLCC academic policies may be found in the SLCC 2023-2024 Catalog, and the Code of Student Rights and Responsibilities.

Schedule

Ecology Tentative Schedule Spring 2024

Date	Lecture Topic	Reading	Lab (labs due each Sunday)	Independent Research Project
1/8	The Web of Life	Chp 1	1) Ecological Study Design Lab	
1/10	The Physical Environment	Chp 2		
1/15	No Class		2) Vegetation Abundance Lab	Research Questions & Annotated Bibliography
1/17	class will be held outside and continuous from 8:30am - 12:50pm			
1/22	The Physical Environment continued	Chp 2	3) Ethology Lab	Research Techniques
1/24	The Biosphere	Chp 3		
1/29	Energy Flow and Food Webs	Chp 21	4) Article Analysis Lab	Research Proposal Consultation by appointment
1/31	Nutrient Supply and Cycling	Chp 22		
2/5	EXAM 1 Review (Chps 1, 2, 3, 21 & 22)		Research Proposal Presentations	Research Proposal Presentation during lab
2/7	Population Distribution and Abundance	Chp 9		
2/12	Population Dynamics	Chp 10	5) Human Demographics Lab	
2/14	Population Growth	Chp 11		

	and Regulation			
2/19	No Class		6) Metapopulation Lab	Research Abstract due 2/22
2/21				
2/26	EXAM 2 Review (Chps 9-11)		Research consultations	Research Data Consultations by appointment
2/28				
	No Class – Spring Break (3/4-3/9)		No Lab	
3/11	Evolution	Chp 6	7) Evolution/ NIche Partitioning Lab	Poster Draft Consultations by appointment
3/13	Life history	Chp 7		
3/18	Behavioral Ecology	Chp 8	8a) Place pitfall traps	Research Poster due 3/15
3/20	Predation and Parasitism	Chp 12 + Chp 13		
3/25	Competition	Chp 14	8b) Pitfall trap collection and water samples	
3/27	Mutualism and Commensalism	Chp 15		
4/1			9) Species Diversity Lab – Pitfall trap data analysis	UPRC Poster Presentation (4/2)
4/3	EXAM 3 Review (Chps 7, 8, 12, 13, 14, & 15)			
4/8	No Class		10) Species Diversity Lab Part 3 -GIS	ePortfolio Research Reflection
4/10	The Nature of Communities	Chp 16		
4/15	Change in Communities	Chp 17	11) Mammal Diversity Lab	
4/17	Biogeography	Chp 18		
4/22	Species Diversity in Communities	Chp 19		
4/24	Final Exam Review (Chps 16-19 and comprehensive)			
	FINAL EXAM			

Description of Assignments/Exams

EVALUATION/GRADING

1. Syllabus Quiz (7 pts). After reviewing this syllabus, please take the Syllabus quiz to demonstrate your understanding and agreement to the syllabus.

2. Chapter Quizzes (17 quizzes * 10pts/ quiz = 170 total points possible). It is essential that students come prepared to lecture. Students will be expected to read the corresponding textbook chapter and watch the associated videos and take an open note/ open book quiz prior to coming to class at 8:30am. Students will have 2 chances to take the quizzes and the highest grade will be counted.

3. Chapter Worksheets (18 worksheets * 11pts/ worksheet = 198 total points possible). Students will be expected to complete a worksheet that reviews the concepts and analyses covered each chapter. Attending class meetings and working with your group to complete the worksheets is mandatory to earn full credit. Chapter Worksheets are due by 11:59pm after the corresponding classes.

4. Three Midterm Exams (100pts each) and Final Exam (115 Points). Three midterm examinations and one final comprehensive examination will be given. The exams will be given in the testing center during the week of the exam review. The exam questions will be mostly multiple choice and matching. You will also be asked to apply concepts learned in class to a variety of unfamiliar situations. Other questions will require that you use the basic quantitative skills discussed in lecture and in the lab. Any make-up of midterm exams is at the instructor’s discretion and ONLY when prior arrangements have been made.

5. Independent Research Project (110 total points possible). You will be required to conduct an ecological research project. There will be several components to this assignment with due dates throughout the semester to aid in the completion of the project. The final product will be a poster presentation for the SLCC Undergraduate Project and Research Conference on 4/2.

6. Laboratory (10 labs * 10pts/ lab = 100 total points possible). Lab assignments will consist of a mixture of ecological observations and data analysis and problem sets associated with computer simulations. You may be required to graph data using Excel. Lab will also involve a few class and/or individual field trips. Lab assignments are due each week by Sunday at 11:59pm.

Extra Credit Options:

You may earn up to a maximum of 50pts extra credit. Below are some of the opportunities that you will have to earn extra credit. Further details will be posted in Canvas. I recommend completing the extra credit options whenever possible, because the exams will be challenging and the extra credit can help your grade significantly (you can improve your grade by half a letter grade). Because of the ample extra credit opportunities, I WILL NOT give other options at the end of the semester even if you only need a couple more points to earn a better grade.

- Age Structure Additional Research (10pts)
- Evolution Lab (10pts)
- BLAST Phylogeny Exploration (10pts)
- Ecology/ Conservation Biology/ Evolution documentary annotated summary and course connections (5pts/ summary)

Grading Scale

Item Points

Syllabus Quiz 7 pts

Chapter Quizzes 170 pts.

Chapter Worksheets 198 pts.

Midterm Exams: 300 pts.

Final Exam: 115 pts.

Research Project 110 pts

Lab Assignments: 100 pts.

Total Points : 1000 pts.

Tentative Grading Scale

Percent cut off	Point Upper	Point Lower	Grade
93	1000	-925	A
90	924	-895	A-
87	894	-865	B+
83	692	-825	B
80	824	-795	B-
77	794	-765	C+
73	764	-725	C
70	724	-695	C-
67	694	-665	D+
63	664	-625	D
60	624	-595	D-
0	480	0	E

NOTE: Use the above grading scale as a guideline during the semester. The final grading scale will be determined after the final exam. The final grading scale will be very close to this one.

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

You can access the document by clicking on the following link: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, please visit the Institutional Syllabus under the Tutoring and Learning Support tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, please visit the Institutional Syllabus under the Advising and Counseling Support Services tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

Due Date	Assignment Name	Assignment Type	Points
	Predator-Prey and Competition Simulation - Extra Credit	Assignment	0
	Research Data Draft	Assignment	10
	Research Proposal Consultation	Assignment	10
1/8	Chapter 1 Worksheet	Assignment	11
1/14	1) Ecological Study Design Lab	Assignment	10
1/17	Chapter 2 Worksheet pt 1	Assignment	11
1/19	Syllabus Quiz	Quiz	7
1/21	2) El Nino Visualization Lab	Assignment	10
1/22	Chapter 2 Pre-Class Quiz	Quiz	10
1/22	Chapter 2 Worksheet pt 2	Assignment	11
1/24	Chapter 3 Pre-Class Quiz	Quiz	10
1/24	Chapter 3 Worksheet	Assignment	11
1/28	3) Cricket Ethology Lab	Assignment	10
1/29	Chapter 21 Pre-Class Quiz	Quiz	10
1/29	Chapter 21 Worksheet	Assignment	11

Due Date	Assignment Name	Assignment Type	Points
1/31	Chapter 22 Pre-Class Quiz	Quiz	10
1/31	Chapter 22 Worksheet	Assignment	11
2/4	4) Article Analysis Lab	Assignment	10
2/6	Research Proposal	Assignment	20
2/7	Chapter 9 Pre-Class Quiz	Quiz	10
2/7	Chapter 9 Worksheet	Assignment	11
2/12	MIDTERM EXAM 1	Quiz	100
2/12	Chapter 10 Worksheet	Assignment	11
2/14	Chapter 11 Worksheet	Assignment	11
2/18	Research Techniques	Discussion	10
2/18	5) Human Demographics Lab - Plus Extra Credit Opportunity	Assignment	10
2/18	Research Questions & Annotated Bibliography	Assignment	11
2/23	Chapter 11 Pre-Class Quiz	Quiz	10
2/25	6) Metapopulation Lab	Assignment	10
3/8	MIDTERM EXAM 2	Quiz	100

Due Date	Assignment Name	Assignment Type	Points
3/11	Chapter 6 Pre-Class Quiz	Quiz	10
3/11	Chapter 6 Worksheet	Assignment	11
3/13	Chapter 7 Pre-Class Quiz	Quiz	10
3/13	Chapter 7 Worksheet	Assignment	11
3/14	Research Draft Poster Review - look here for poster templates	Assignment	10
3/17	7) Competition	Assignment	10
3/19	Chapter 8 Pre-Class Quiz	Quiz	10
3/20	Chapter 8 Worksheet	Assignment	11
3/25	Chapters 12 & 13 Pre-Class Quiz	Quiz	10
3/25	Chapter 12 & 13 Worksheet	Assignment	11
3/26	Class 14 (Chapter 14) Pre-Class Quiz	Quiz	10
3/27	Chapter 14 Worksheet	Assignment	11
3/28	Chapter 15 Pre-Class Quiz	Quiz	10
4/1	Chapter 15 Worksheet	Assignment	11
4/2	Research Symposium Presentation	Assignment	30

Due Date	Assignment Name	Assignment Type	Points
4/10	Chapter 16 Pre-Class Quiz	Quiz	10
4/10	Chapter 16 Worksheet	Assignment	11
4/14	Chapter 17 Pre-Class Quiz	Quiz	10
4/14	10) Species Diversity Lab - pitfall trap data analysis	Assignment	10
4/14	9) Species Diversity Lab - pitfall trap data collection	Assignment	20
4/15	MIDTERM EXAM 3	Quiz	100