

BIOL 4406 – Principles of Ecology Spring 2025 Syllabus
INSTRUCTOR AND COURSE DESCRIPTION

Instructor: Dr. Thornton R. Larson

Office Hours: T 4:30PM -7PM; MR 1 PM- 2 PM;
or by appt

Office: WSB 221

Office Phone: (432)837-8084

Email: trl21jz@sulross.edu

Lectures: Monday/Wednesday 9:30 AM to 10:45 AM
PM

Laboratory: W 1:30 PM to 3:15 PM

Course Description

Ecology deals directly with the relationship between organisms and their environment. Topics in these courses provide foundational information and techniques for the study of plants and animals. Various aspects of ecological organization will be covered in this course, including population dynamics, community structure, and ecosystem function, at different spatial and temporal scales. This is one of my favorite subjects to discuss and instruct.

The lecture course will cover many main topics associated with ecology, but this course should still be viewed as just a small taste of different ideas and concepts within ecology. Same goes for the lab techniques. The lab in this course is meant to have you outdoors, learning some basic techniques within ecology. There will be a significant amount of writing and analysis as part of the lab and therefore I have kept other assignments at a minimum to allow you more time for completing the laboratory studies.

I want to partner with you in your ecological learning journey and as such would like you to come to my office hours and meet with me several times throughout the semester. I would like to have the first meeting with you before the end of February so please take some time in this first week to schedule some time you would like to meet with me. Our conversations do not have to deal directly with the course and as extra incentive I will put it here but if you meet with me 3 times during the semester you will receive 10 points of extra credit toward an exam score.

Required Materials

Textbook is Libretext “Ecology for All!” <https://commons.libretexts.org/book/bio-69816>

Labs and corresponding assignments will be posted on Blackboard

Exams and Grading

Lecture:

4 lecture exams	400
3 Writing Assignments	60
Exit Notes	40

Lab:

Lab Assignments	200
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A 90 – 100% B 80 – 89% C 70 – 79% D 60 – 69% F <60%

COURSE OBJECTIVES, LEARNING OUTCOMES, MARKETABLE SKILLS, POLICIES, AND UNIVERSITY SERVICES

Course Objectives: At the end of the semester, students will:

1. Develop hypotheses driven experiments to test questions about patterns in nature and the natural processes.
2. Describe theories that describe the patterns of abundance and diversity of organisms.
3. Define competition, predation, mutualism, and parasitism and give examples of each.
4. Model population growth, population regulation, and describe factors that limit population growth.
5. Diagram energy flow in an ecosystem.
6. Describe biogeochemical cycles and how human impacts have altered them.
7. Use spreadsheets to organize, manipulate, and summarize data.
8. Present data in tabular and graphic formats.
9. Interpret patterns in data gathered and conclude possible causation.
10. Effectively communicate findings from field/lab investigations in formal reports.

Student Learning Outcomes (SLOs) for Biology:

1. Demonstrate an understanding of evolution by natural selection.
2. Demonstrate an integration of environmental awareness into everyday modern life.
3. Understanding how to incorporate molecular biology into the study of the whole organism.
4. Demonstrate utilization of various field techniques toward addressing scientific questions in the discipline.
5. Conduct basic laboratory experiments utilizing standard observational strategies.
6. Critical Thinking. Students will develop critical thinking skills to include creative thinking, innovation, inquiry, analysis, evaluation, and synthesis of information.
7. Students will develop communication skills to include effective development, interpretation, and expression of ideas through written, oral, and visual communication.

Marketable Skills

1. Ability to organize, analyze, and interpret data.
2. Proficiency in using presentation software.
3. Experience in managing time and meeting deadlines.
4. Ability to speak effectively and write concisely about scientific topics.
5. Experience in the development of professional email correspondence.

Attendance:

Mandatory. Roll will be by through the exit notes that I provide for you to fill out. I am allowed to drop you from my class if you miss more than six times (that accounts for 3 full weeks of lecture). I generally do not drop you myself so don't expect that I will. I do not wish to hear excuses for missing class and do not want to hear about it every time you are gone. Absences are excused only if you have a documented, university-approved excuse (hospitalization, funeral, etc.) **DO NOT MISS EXAMS** unless you have a documented, university-approved excuse. If you do not inform me of your approved absence before the exam, it will be a **ZERO**.

Time Commitment Expectations:

Note – This outline is subject to change. The exams will be administered on the dates given unless material relevant for a given exam has not been covered.

STUDYING: As a general rule, students should spend 2-3 hours studying for every 1 hour of lecture material. So, for this class, you need to allocate 5-7.5 hours per week to study the lecture material. Completing the readings is technically required before lecture so, **I HIGHLY RECOMMEND READING BEFORE LECTURE**. You have been given the tentative schedule- please review it and read the material beforehand. I recommend reading your notes in conjunction with reading the relevant textbook chapters. Studying is best done shortly after the lecture, not all at once the night before the exam. Look up anything that you do not understand or visit with your instructor during office hours.

Summary Papers:

More specific instructions on summary papers will be provided on Blackboard. The purpose of these assignments is for you to read current research in genetics. When I announce the assignments, you will have one week to submit the paper you plan to review to me, upon which I will state if A) it is a research paper (many students still at this stage in their education are unfamiliar with what constitutes a peer-reviewed research paper), B) if the paper is something that I think you are able to understand in a thorough enough manner to review it. If you choose not to check the paper with me and it is not a peer-reviewed research paper, you will lose significant points on the assignment.

Exit Notes:

Upon the conclusion of every class, students will fill out notecards about the following topics. One will express something they are lost on and should consider scheduling office hours to discuss for their understanding. The second is for things they mostly got. This will inform the instructor to consider reviewing that topic, likely at the beginning of the next class. The third is for topics that they completely understand. All of these allow the instructor to understand what areas may need more attention in next lectures, reviews before exams, and even future courses.

Late Work Policy:

Late work is frowned upon for assignments to be turned in. All assignments will be due turned in to the appropriate assignment section (Blackboard or other online program) before class starts that day. That means if class starts at 11:00 AM the assignment is in Blackboard by 10:59.59 AM. After this time, you will lose 10% on the assignment. After 24–48 hours late it will be 20% off, and 48–72 hours late it will be 30% off. Beyond these times it will be a '0' on the assignment. These terms are meant to respect both timeliness and flexibility of deadlines and will be upheld.

SRSU Library Services

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, <https://library.sulross.edu/>. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as InterLibrary Loan (ILL), ScanIt, and Direct Mail to get materials delivered to you at home or via email.

SRSU Disability Services:

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartz@sulross.edu or ronnie.harris@sulross.edu. RGC students can also contact Alejandra Valdez, at 830-758-5006 or email alejandra.valdez@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

Academic Integrity:

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources **unless permission is expressly given** for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

I will reiterate here that I take academic dishonesty and plagiarism very seriously. Citations are your friend. There is a difference between knowingly being dishonest with what is your work and mistakes through learning.

Classroom Climate of Respect

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Supportive Statement

I aim to create a learning environment for my students that supports various perspectives and experiences. I understand that the recent pandemic, economic disparity, and health concerns, or even unexpected life events may impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

Counseling

Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting [Timelycare/SRSU](https://www.timelycare.com/srsu). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

Required Student Responsibilities Statement

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize themselves with the requirements of such laws.

For Remote/Online Courses Only - SRSU Distance Education Statement.

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the

course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

Tutoring Center

The Lobo Den Tutoring Center offers FREE tutoring support to help you excel in your courses. Whether you need assistance in Writing, Math, Science, or other subjects, we're here to help!

Important Information:

Drop-in and Scheduled Appointments: Flexible options to fit your needs.

Hours of Operation: Monday–Friday, 8:00 AM – 5:00 PM.

Workshops: Attend our regularly hosted academic workshops on STEM topics and professional development, often in collaboration with specialized faculty.

Location: BWML Room 128.

Contact Us: For more information or to book an appointment, email tutoring@sulross.edu or call (432) 837-8726.

Looking for additional support?

Tutor.com offers FREE 24/7 online tutoring in over 200 subjects, including specialized support for ESL and ELL learners with native Spanish-speaking tutors.

Access Tutor.com via Blackboard: Log in to your Blackboard account to get started anytime, anywhere.

Take advantage of these valuable resources to boost your confidence and performance in your classes. We look forward to helping you succeed!

Connecting with Students for Success

As a part of a research study, I am committed in this course to the following:

- I will know your name
- I will provide user-friendly, timely feedback on your assignments
- I will hold high standards and support you to achieve them
- I will hold an individual meeting with each student during the semester

TENTATIVE LECTURE SCHEDULE

	TOPIC	Chapter
<i>Week 1</i> Jan 13th	No Class	
Jan 15	Introduction/Syllabus Introduction to Ecology	Chapter 1
<i>Week 2</i> Jan 20th		
Jan 20	The Physical Environment	Chapter 2
Jan 22	The Physical Environment Part 2	Chapter 2
<i>Week 3</i> Jan 27th		
Jan 27	Introduction to Evolution	Chapter 3
Jan 29	Adaptations to Physical Environment	Chapter 4
<i>Week 4</i> Feb 3rd		
Feb 3	Terrestrial and Aquatic Biomes	Chapter 5
Feb 5	Review	Ch1-5
<i>Week 5</i> Feb 10th		
Feb 10	Exam I	Ch1-5
Feb 12	Evolution of Populations and Species	Chapter 6
<i>Week 6</i> Feb 17th		
Feb 17	Phylogenies and the History of Life	Chapter 7
Feb 19	Life Histories	Chapter 8
<i>Week 7</i> Feb 24th		
Feb 24	The Ecology of Populations	Chapter 9
Feb 26	Population Modelling	Chapter 10
<i>Week 8</i> March 3rd		
March 3	Review	Ch 6-10
March 5	Exam II	Ch 6-10
<i>Week 9</i> March 10th		
March 10	Behavioral Ecology	Chapter 11
March 12	Sex Strategies	Chapter 12
<i>Week 10</i> March 17th		
March 17	Spring Break	
March 19		
<i>Week 11</i> March 24th		
March 24	Intraspecific variation and Species Interactions	Chapters 13 and 14
March 26	Competition	Chapter 15
<i>Week 12</i> March 31st		
March 31	Antagonistic Interactions	Chapter 16
April 2	Mutualism and Commensalism	Chapter 17
<i>Week 13</i> April 7th		
April 7	Review	Chap 11-17
April 9	Exam III	Chap 11-17

<i>Week 14</i> April 14th		
April 14	Ecological Succession	Chapter 18
April 16	Food Webs	Chapter 19
<i>Week 14</i> April 21st		
April 21	Biogeochemical Cycles	Chapter 20
April 23	Landscape Ecology and Island Biogeography,	Chapter 21
<i>Week 15</i> April 28th		
April 28	Biodiversity and Conservation Biology	Chapters 22 and 23
April 30	Review, maybe some chap 24 too	
<i>Week 16</i> Finals	Finals Week	Ch 18-23