NRM 4309
Population Ecology
Instructor: Dan Collins
RAS 129
930 AM – 1045 AM, Tuesday and Thursday
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Office Hours: Tuesday, 1:00 PM to 4:00 PM, or by appointment.

Course Overview
This course is intended to give the student a reasonably gentle introduction to the field of population dynamics, which is the study of how population sizes change through time. We start with first principles and steadily generalize into more detailed (and useful) views of how populations change. Population dynamics are the scientific backbone of wildlife management, so this course is designed to give you both an academic and practical understanding of the field. Each week we will spend a lecture on a topic from Pop-Dy theory, discussing theory and then how one would apply it. Assignments will be varied but useful ranging from comparing theory / techniques (i.e., Writing!), generating data and using it in application (i.e., R!), and reading seminal papers, summarizing said papers and discussing (i.e., Wait what you have to write and talk more!). By the end of the class, you should be able to:

1. Frame management problems in terms of population outcomes
2. Select relevant theory to use in addressing management questions or problems
3. Estimate population parameters with real data
4. Use your knowledge to make sound management decisions

Recommended Text
Rockwood, L.L. 2015. Introduction to Population Ecology. Second Edition. John Wiley & Sons Ltd., West Sussex, UK.

I like this book for a couple of reasons the authors build the concepts and equations incrementally and thoroughly. These books cover topics beyond what we will touch on in class, but by starting with first principles you will have the tools to learn those things on your own when you need them. The material in the book can be a little dense sometimes, but those that dive deep will be rewarded on exam day.

Tentative Schedule	Topic	Notes
Week 1 (Jan 15)	Intro to Population Ecology	Assignment 1
Single Species Populations		
Week 2 (Jan 20 & 22)	Density Independent Growth	Assignment 2
Week 3 (Jan 27 & 29)	Density Dependent	Assignment 3
Week 4 (Feb 3 & 5)*	Population Regulation	Asynchronous learning Feb 5
Week 5 (Feb 10 & 12)	Populations with Age Structure	Assignment 4
Week 6 (Feb 17 & 19) *	*TBD*	***TXTWS No Class***
Week 7 (Feb 24 & 26)	Life History Strategies	Assignment 5
Week 8 (Mar 3 & 5)	Review and Test	*Test Mar 5*
Week 9 (Mar 10 & 12)		***Spring Break No Class***
Interspecific Interactions among Populations		
Week 10 (Mar 17 & 19)	Interspecific Competition	Assignment 6
Week 11 (Mar 24 & 26)	Mutualism	Assignment 7
Week 12 (Mar 31 & Apr 2)	Predator/prey Interactions	Assignment 8
Week 13 (Apr 7 & 9)	Plant-herbivore interactions	Assignment 9
Week 14 (Apr 14 & 16)	Multi-trophic Interactions	Assignment 10
Week 15 (Apr 21 & 23)	Review and Presentation	Project Presentation Apr 23
Week 16 (Apr 28)	Test	Final Exam

Assignments

All assignments in this class will be completed and handed in the appropriate form (e.g., WORD, LaTeX) or to your choosing with prior approval. Side note, I do not assume you know anything about statistics or programming, so don't be scared. R is the most rapidly growing tool in our field and will soon be an essential skill, much like GIS has become. The idea is to give you some elementary exposure to this excellent tool and not force you to pay for something that is much less capable. It is best that you install both R and R Studio, which is a convenient interface. They are available for free download at:

- **R:** https://cloud.r-project.org/
- **R Studio:** https://rstudio.com/products/rstudio/download/

Each regular assignment will be made available on Tuesday of the week it is assigned and will be due the following Tuesday. Late submissions will not be accepted unless prior arrangements are made (implying there was a good, foreseen reason to be late), except under reasonable extenuating circumstances.

- **Reading Assignments**
  - Read select paper and summarize in your own words. Do not pull directly from the Abstract (it will be obvious if you do!). Be prepared to have a group discussion about the paper during class
  - At times you will be given two papers to read. Compare and contrast the assigned papers, summarize, and be prepared to discuss.
- **Project / Presentation**
  - Explore a topic presented during class that piques your interest
  - Develop a hypothesis about the topic of interest

- Design a Study (i.e., how data will be collected, what analysis will be used, potential outcomes, management implications, etc.)
- Present your findings and discuss with class

Grading Policy
I DO NOT ROUND! Grades are based on assignments (100 pts total), final presentation (100 points total), and 2 exams (100 points / test):
Letter grades follow: $100 > A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$. There is no curve.

Attendance
Showing up is the only way to get the material you need. If you don't come to class, your grade will reflect it with no penalty needed from me. In the event of an excused absence, make arrangements with me to go over material ahead of time.

Class etiquette:
Please turn cell phones off at the beginning of each class. Put away all computers during lectures and do not web surf or email during class. In this course, we value a positive and respectful learning environment. Please adhere to the following class etiquette guidelines to ensure a smooth and productive experience for everyone. Attend all classes regularly and arrive punctually, notifying the instructor in advance if you must miss a class. Actively participate in class discussions, respecting the opinions of your classmates. Use respectful language in all forms of communication, maintaining professionalism in emails. Keep the classroom clean and organized. If you bring an apple for the instructor on the second day of class, you will earn one extra point on your first exam. Uphold principles of academic honesty and integrity. Dress appropriately for the learning environment and provide constructive feedback to peers and the instructor. Your commitment to these guidelines contributes to a positive and enriching learning atmosphere.

Academic Dishonesty:
Academic dishonesty includes copying, sharing, or obtaining information from an unauthorized source, attempting to take credit for the intellectual work of another person, falsifying information, and giving or receiving information about a test, quiz, or assignment to other students. Any student involved in academic dishonesty will receive no credit (0) for work done and/or may be penalized in accordance with published University Rules.

Statement Regarding Generative Artificial Intelligence (AI):
The University does not recommend or endorse any specific AI tools or resources. Students should be aware that many generative AI tools (e.g., ChatGPT, Google Gemini, Microsoft Copilot) store user input and may use this data to train future models. For this reason, students should never upload or share personal, confidential, or identifiable information—such as names, ID numbers, health data, or assignment submissions containing such details—into any generative AI platform. When using AI tools, students should verify whether the tool complies with student privacy standards as indicated by the University.
Students may use AI as part of their research and preparation for assignments, or as a text editor, but text that is submitted must be written by the student. For example, students may use AI to generate ideas, questions, or summaries that they then revise, expand, or cite properly. Students

should also be aware of the potential benefits and limitations of using AI as a tool for learning and research. AI systems can provide helpful information or suggestions, but they are not always reliable or accurate. Students should critically evaluate the sources, methods, and outputs of AI systems. Violations of this policy will be treated as academic misconduct. If you have any questions about this policy or if you are unsure whether a particular use of AI is acceptable, please do not hesitate to ask for clarification.

University Programs and Policies
Americans with Disability Act (ADA) Statement:
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 Schwartze Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartze@sulross.edu or ronnie.harris@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. Please note that instructors are not permitted to provide classroom accommodations to a student until the appropriate verification has been received.

SRSU 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.

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.
Technical Support. SRSU 24/7 Blackboard Technical Support: Toll Free: 888.837.6055.
Email: blackboardsupport@sulross.edu

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, 6 and more by visiting the library's website, library.sulross.edu/. Off-campus access requires logging

in with your LobolD 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.

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. 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.

Lobo Den:
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 (aka the library) 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. They look forward to helping you succeed!