



BIO 3406 – General Ecology Spring 2017, Web-based

Instructor: Dr. Kevin V. Young
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Office hours: Monday – Thursday (Del Rio) 1:30pm – 3:00pm
or by appointment (or online by request)

Required Texts: SimUText (you may purchase a voucher from the bookstore or directly from simutext).

Website: **Blackboard** site for Cell Biology. I post announcements frequently, which will go to your school email.

Instructions for accessing your online materials

- CHECK YOUR TECH! Visit <https://simutext.zendesk.com/hc/en-us/categories/200170134-Check-Your-Tech-> to confirm that the SimUText application will work on your computer, and/or to explore your options if there is a problem.
- If you purchased a SimUText Voucher from your bookstore, be sure to have it with you when subscribing, as you will need to enter your voucher code.
- When you are ready to subscribe and download installers, follow this link to initiate the process: <https://www.simutext2.com/student/register.html#/key/UQLS-NZMy-k6DV-LWNF-kc72>
- After you have completed the subscription process, if you need to download the SimUText application installers again, you will be able to access them by logging into the [SimUText Student Portal](https://www.simutext2.com/student) (<https://www.simutext2.com/student>).

Course Objectives:

Ecology is a science concerned with interactions between living organisms and their environment (including other living organisms and non-living components such as temperature, rainfall, etc). It considers the many interacting variables that affect such things as species distribution, diversity, and abundance. It looks for predictable patterns, makes predictions, and tests those predictions through additional data collection or sometimes through direct experimentation. One challenge is that ecologists are trying to take the complexities of the real world and reduce them into simplified mathematical models, which means the variables that have the strongest effects must be identified and accurately measured. It also means that hundreds of other variables that have smaller effects on the system of interest will have to be overlooked (not included in the mathematical model), leading to “noise” in the data. Most people are not used to creating and using mathematical models, so this course will help you understand that process and give you new insights into how data can be used. You will also gain a greater understanding of humanity’s role in shaping ecosystems and influencing the living and non-living environment, including climate.

This course is set up for independent learning, but I do not want you to feel alone. I will be working through the exercises too and will be ready to answer your questions and help where I can. I can meet in person, you can call, I can make little videos, and we can do online live meetings. Please keep in frequent contact so we can work through this together.

Tentative Schedule. Exact dates subject to change.

The overall plan: one topic due each Monday morning at 10 AM. Each assignment may take a significant amount of time. Please start early so you can communicate with me if you run into problems. In addition to your weekly online work I am planning on a final exam as well as two intermediate exams, but this plan may change.

Due Date	Topic(s)	Readings
Jan 23	Biogeography	4 sections of material
Jan 30	Climate Change	5 sections of material
Feb 6	Community Dynamics	5 sections of material
Feb 13	Competition	4 sections of material
Feb 20	Test 1	
Feb 27	Evolution for Ecology	4 sections of material
Mar 6	Isle Royale simulations	6 sections of material
Mar 13	Intermediate Disturbance and Keystone Predator	2 sections of material
Mar 13-17	Spring Break	
Mar 27	Life History	4 sections of material
Apr 3	Nutrient Cycling	4 sections of material
Apr 10	Niche Wars and Nutrient Pollution	2 sections of material
Apr 14	Test 2	
Apr 17	Physiological Ecology	4 sections of material
Apr 24	Population Growth	5 sections of material
May 1	Predation, Herbivory, and Parasitism	5 sections of material
May 9-11	Comprehensive Final	

Student Learning Outcomes: By course completion students will be able to . . .

1. Demonstrate use a logistic growth equation, including r , K and competition coefficients, to predict eventual outcomes between species in a competitive environment.
2. Discuss niche segregation and interpret the effects of disturbance and predation on competitive outcomes.
3. Explain life history tradeoffs and what factors would favor r -selected or K -selected species.
4. Understand nutrient cycling and factors that limit or accelerate cycles of carbon, nitrogen, and other nutrients.
5. Explain various roles of humans within ecosystems, including human influence on species distributions, nutrient systems, soil ecology, extinction, and climate.
6. Distinguish differences between keystone predators and foundation species.

Grade assessment:

This is a tentative plan which may change: Your weekly chapter work will be graded and will represent 80% of your total grade. A comprehensive final exam will count for 10% of your total grade, and two intermediate exams will each count for 5% of your total grade. You will then be assessed on a standard grading scale.

Note: I reserve the right to include other indications of learning into your grade, such as short writing assignments, data analysis, thoughtful participation in online discussions, etc.

Americans with Disabilities Act (ADA):

Sul Ross State University is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services.

Students seeking accessibility services must contact Mary Schwartz, M. Ed., L.P.C., in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8691. E-mail: mschwartz@sulross.edu

Academic Honesty:

I actually encourage working together, as long as both of you are actively learning. However, each person must enter their answers on their own account. There is a difference between cooperation and cheating. Here is some standard language regarding cheating:

Cheating will not be tolerated. The University expects all students to engage in all academic pursuits in a manner that is above reproach and to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. "Cheating" includes, but is not limited to:

- Copying from another student's test paper, a laboratory report, other report, or computer files, data listings, and/or programs.
- Using, during a test, materials not authorized by the person giving the test.
- Collaborating, without authorization, with another person during an examination or in preparing academic work.
- Knowingly, and without authorization, using, buying, selling, stealing, transporting, soliciting, copying, or possessing, in whole or in part, the contents of an unadministered test.
- Substituting for another student; permitting any other person; or otherwise assisting any other person to substitute for oneself or for another student in the taking of an examination or test or the preparation of academic work to be submitted for academic credit.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
- Purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm. This section does not apply to the typing of the rough and/or final versions of an assignment by a professional typist.
- Plagiarism: using another's work and claiming it as your own. To avoid plagiarism, make sure you always use your own words to construct your written answers, and cite your sources.

Well Wishes

I hope this class gives you "new eyes" from which to see landscapes, populations, and human societies. Ecology is great for getting large-scale views of our planet and the processes that are responsible for the abundance and diversity we enjoy. I also hope that this class helps you become a better student since you will be faced with working your way through a lot of material with little help from me.

You are capable of more than you know. Choose a goal that seems right for you and strive to be the best, however hard the path. Aim high. Behave honorably. Prepare to be alone at times, and to endure failure. Persist! The world needs all you can give.

E. O. Wilson (famous ecologist)

E. O. Wilson is one of my personal heroes, so I need to give you another quote from him:

Destroying rainforest for economic gain is like burning a Renaissance painting to cook a meal.