

VALDOSTA STATE UNIVERSITY BIOLOGY DEPARTMENT ECOLOGY & EVOLUTION SYLLABUS BIOL 3250 – Spring 2021

Instructor Name: Emily Rose, Ph.D.

E-mail address: erose@valdosta.edu

Office Location: Bailey Science Building 2211

Office Hours: [Tuesday](#) & [Thursday](#) 3:30-5:30pm and by appointment

Lecture location: Bailey Science Center 1011

Lecture times: Tuesday & Thursday 2:00-3:15pm

Lab location: Bailey Science Center 3018- Biology computer lab

*Lab Sections/times: Monday 2:00-4:50pm (sec C), Wednesday 9:00-11:50am (sec D),
Wednesday 1:00-3:50am (sec E)*

Course Overview:

BIOL 3250. Ecology and Evolution. 4 Hours. Prerequisites: BIOL 1107, 1107L, BIOL 1108, 1108L, and BIOL 3200. An introduction to major topics in ecology and evolution, including population, community, and ecosystem ecology; Darwinian theory of evolution through natural selection; microevolution and macroevolution. Computer and field labs will provide exposure to both evolutionary theory and field ecology.

Required Materials:

Text: Ecology: Evolution, Application, Integration by David Krohne, Oxford University Press

Excel- Provided by VSU through your email account

Online simulations through SIMBIO for the lab- will be provided for free this semester

Tentative Plan for the Course Format:

We will be meeting face-to-face for lecture and labs. We will have several labs that will include fieldwork outside. Students will be required to have access to Excel either on their own machines, in a computer lab or by remote accessing the lab computers to complete assignments. If there are changes to the course format due to COVID-19 you will be notified by Dr. Rose via email and announcements on BlazeVIEW, in addition to the official University emails. If you are unable to attend class in person due to illness, you are responsible for contacting Dr. Rose directly to make arrangements for attending class virtually. Online accommodations will only be made for students who have VSU approval.

Course Learning Objectives:

This course covers a wide range of topics within the realm of ecology and evolution and allows student to develop their own ideas through a peer-reviewed research grant writing process. The laboratory portion offers students the opportunity to get directly involved with ecological experimentation and techniques, while diving into the evolutionary theory using a variety of simulations and activities.

By the end of the semester, each student will:

- 1) Develop a better understanding of ecological and evolutionary concepts and cultivate critical thinking skills through the scientific method.
- 2) Operate scientific instruments and equipment commonly used in biological experimentation.
- 3) Understand the basis of evolutionary ecology theory and its application.
- 4) Translate analyzed data into meaningful scientific results, synthesize a literature review, develop their own questions/hypotheses.
- 5) Compose a research grant and build upon their scientific writing skills.
- 6) Work on their ability to convey ideas and educate others while giving presentations.

These course objectives are aimed to fulfill the VSU General Educational outcomes 3,4,5 and 7. This course's set of learning objectives support the outcomes 1, 2 and 5 of the [VSU Selected Educational Outcomes for the B.S. Degree in Biology](#).

Important dates

| Exams | Research Grant and Peer review due dates |
|---|---|
| Exam 1: February 2 nd (T) | Topic and 5 papers for literature review due in RG meetings scheduled in Labs 4 & 5 |
| Exam 2: March 2 nd (T) | Annotated Bibliography & Project/Hypotheses due by meetings Lab 7 (W 3/3 and M 3/8) |
| Exam 3: March 30 th (T) | Grant submitted for peer review 3/31 st Peer reviews due by 4/14 th |
| Exam 4: Finals week May 5 th (W) | Presentations week of 4/26-4/29 Final version of grant due 5/2, include peer review & Dr. Rose's comments in final edits |

Grade Determination:

| Assessment | Points | Grading Scale: > 90, A 80-89.5, B 70-79.5, C 60-69.5, D <59.4, F |
|---|--------|---|
| Participation in Lab and Lecture | 30 | |
| Grant Proposal, Annotated Bib & Peer Review | 170 | |
| Final Presentation | 50 | |
| Each exam is 100 pts (4 lecture & 2 lab) | 600 | |
| Lecture and Laboratory Assignments | 150 | |
| Total Points | 1000 | |

Participation: Points for participation will be given based on your preparedness and your contribution to the lecture and lab activities. This includes participating in the chat or poll sections of the lecture on BBcollaborate (if we move virtual) and also your level of helping to collect the data and work as a team member during the lab assignments. I will be taking attendance for the COVID contract tracing for all of our class meetings and points will be deducted for students who are chronically late or missing class.

Lecture and Lab assignments: For most lab exercises, you will be required to perform graphing/data analysis and/or writing assignments. Some of these you will complete in lab while others will require additional work after lab. These assignments will be explained in detail during lab, and due at the beginning of the following class meeting unless otherwise noted. Instructions on how to turn in the assignment will be explained when the assignment is given (primarily submitted via the Blazeview assignments link, in the SIMBIO platform, completed in the google folder, etc.). I reserve the right to adjust the evaluation criteria in the event of extenuating circumstances. There will be a few readings for lecture that require you to contribute discussion questions prior to meeting for class.

Exams: All lecture exams will start of lecture 2pm and close at the end of class at 3:15pm and administered in person. Lab exams will be in person in 3018 and it will be open note but timed.

Make-Up Work: Make up work or alternative assignments will be determined by the professor and at the sole discretion of the professor. These assignments may or may not exactly duplicate the original and will not entitle other students to the same alternatives since they may not have experienced the same situations.

Classroom and lab Policies:

These guidelines are for your safety and the safety of those around you.

1. No eating or drinking in the lecture or lab.
2. Use hand sanitizer when you enter, wash your hands after the exercises for lab.
3. Know where emergency/first aid equipment and disposal receptacles are for lab. Any injuries should be reported to me immediately!
4. Please dress appropriately for field days. I recommend comfortable closed-toed shoes or water shoes if appropriate for the specific lab, always have drinking water, and some will want to bring sunscreen and/or bug repellent. In addition, fieldtrips are often hot and may require walking to a destination, so you should dress accordingly.
5. Please respect those around you and wear a mask when in the classroom, computer lab or when within 6 feet outside during the lab.
6. Although we are using a lot of technology for our class, please avoid using your phones or computers for anything else during our class time. We have a lot of focus on and juggle so you need to be 100% committed and focused to the course during your 5.5 hours with me each week.

Course Policies:

Title IX Statement

Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including sexual harassment and sexual

violence), sexual orientation, gender identity, religion, age, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title 3 IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: the Director of the Office of Social Equity, titleix@valdosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31698, 229-333-5463.

Academic Integrity Statement

Cheating, plagiarism, copying and any other behavior that is contrary to University standards of behavior will not be tolerated (Academic Honesty Policies and Procedures). Students caught violating any aspect of the Academic Integrity Code will be penalized in all cases. Penalty ranges from “0” on an assignment to “F” for the course without regard to a student’s accumulated points. Students may also face expulsion. It is the student’s responsibility to become familiar with the policies of the university regarding academic integrity and to avoid violating such policies. By taking this course, you agree that all required course work may be subject to submission for textual similarity review to Turnitin, a tool within BlazeVIEW. For more information on the use of Turnitin at VSU see Turnitin for Students.

Students with Disabilities

Students requiring classroom or testing accommodations because of documented disabilities should discuss their needs with the instructor at the beginning of the semester. If you need accommodations for an exam, you must communicate this information with me at least 1 week before the exam. Students not registered must contact the Access Office, Farber Hall, Phone; 245-2498. Website: <http://www.valdosta.edu/access/>

Additional Academic Support

The Academic Support Center (ASC) offers all VSU students **free peer tutoring** in core curriculum courses, including math, writing (any subject), chemistry, biology, foreign languages and more. **Please bring your assignments, textbooks, and homework to tutoring sessions.** Also available are **free, one-hour seminars** for help with **study skills, time management**, and a variety of other topics. Visit our office on the main campus, located in Odum Library, 2nd floor, or call 229-333-7570 for an appointment. We also offer 24/7 access to ThinkingStorm, a professional, online tutoring company. To make appointments for either VSU tutors or ThinkingStorm tutors, click the link “Free Tutoring” in Blazeview (under “resources” or “more.”). VSU’s Academic Support Center is also offering online tutoring, see instructions: <https://www.valdosta.edu/administration/finance-admin/campus-wellness/documents/asc-online-tutoring-.pdf>

Mental Health Awareness

As a student, you may experience a range of challenges that can interfere with learning, such as strained or violent relationships, death and loss, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. VSU services are available and treatment does work. You can learn more about confidential mental health services available on campus at: <http://www.valdosta.edu/student/student-services/counseling-center/>. 24 hour emergency help is also available through the University Police at 229-259-5555 who will contact on-call counselors or appropriate resources for support.

Student Online resources

VSU cares about student success both on and offline, and a variety of resources are available to help students both academically and personally during the Spring 2020 semester.

One of the best resources is VSU's Coronavirus FAQ page located at <https://www.valdosta.edu/health-advisory/faq.php>, Information is available there about internet access, academics, and services, among many other options, including how you can access the Brightspace Pulse app that will allow you to view BlazeVIEW on your smartphone (see <https://www.d2l.com/products/pulse/>). A website devoted to the health and wellness of VSU students can be seen at <https://www.valdosta.edu/administration/finance-admin/campus-wellness/student-resources.php>.

To help students get acclimated to online learning, the University System of Georgia created a quick guide for students to access online courses at <https://sites.google.com/westga.edu/student-guide-online-learning/home>. In BlazeVIEW, all VSU students have a course with guides for how to use tools in BlazeVIEW; search for "VSU BlazeVIEW Student Tutorial Spring 2020."

Student Opinion of Instruction Statement

At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available through SmartEvals. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous to instructors/administrators, and they will be able to access results only after they have submitted final grades. Before final grade submission, instructors will not be able to see any responses, but they can see the percentage of students who have or have not completed their SOIs. While instructors will not be able to see student names, an automated system will send a reminder email to those who have yet to complete their SOIs. Students who withdraw or drop a course will also be sent invitations to complete the Dropped Course Survey. Complete information about the SOIs, including how to access the survey, is available on the [SOI Procedures webpage](#).

How to Succeed in this Course:

- Although there are a lot of points other than exams, you must prepare for the exams to do well on them- they require you to use all of the tools we have covered in class. I recommend recopying your notes into a well organized and concise study guide. You should also be practicing and interpreting any of the equations that we have covered in the course to make sure you understand the concepts in addition to the plugging in of numbers.
- You will need to be able to complete the lab activities on your own during lab exams so taking good notes during lab is very important. You will want to review what we did, why we did it and what we found for each of the labs.
- Ask questions during class or come to virtual office hours. If you cannot make it to office hours, please email Dr. Rose and schedule a meeting for when you are free. If you want to meet in-person you must email Dr. Rose to arrange it ahead of time.

Spring 2021 Schedule: Dr. Rose- Ecology & Evolution course (BIO3250)

General Disclaimer: The professor reserves the right to make changes to this syllabus as necessary.

| Monday Lab | Tuesday Lecture | Wednesday Lab | Thursday Lecture | Research Grant | Assignments |
|--|--|--|---|---|---|
| 1/11 Lab 1: Introductions, Syllabus, Excel | 1/12 CHAPTER 1: Intro to ECOLOGY | 1/13 Lab 1: Introductions, Syllabus, Excel | 1/14 CHAPTER 4 & 5 Intro to BIOMES | Start finding papers about your grant | Practice graphing (10) |
| 1/18 No Lab | 1/19 CHAPTER 16: What is a species & phylogenetics? | 1/20 Lab 2: Community Ecology analyses | 1/21 CHAPTER 16: Species Diversity-Community Ecology | Start finding papers about your research grant topic | Bahamas Diversity Data (15) |
| 1/25 Lab 2: Community Ecology analyses | 1/26 CHAPTER 17: Ecological Succession | 1/27 Lab 3: Species Diversity Fieldwork | 1/28 Finish Chapters and Review for Lecture Exam 1 | Schedule your time slot for Lab 4's meetings | Stats from class data (5) |
| 2/1 Lab 3: Species Diversity Fieldwork | 2/2 LECTURE EXAM 1: Biomes and Ecosystems | 2/3 Lab 4: Mark/Recap & Grant Proposal meetings (half) | 2/4 Chapter 10: Life History Strategies | (10) Must have 5 papers picked out and ideas for grant | Turn in Mark/Recap data from lab 4 (10) |
| 2/8 Lab 4: Mark/Recap & Grant Proposal meetings (half) | 2/9 CHAPTER 8: Demography | 2/10 Lab 5: Life History & Grant Proposal meetings (half) | 2/11 CHAPTER 9: What limits population growth? | Work on annotated bibliography | Turn in Tables and graph from lab 5(10) |
| 2/15 Lab 5: Life History & Grant Proposal meetings (half) | 2/16 No Lecture | 2/17 Lab 6: Isle Royale (Simbio) | 2/18 CHAPTER 12: Coevolution- Predator & Prey | Develop research question and your hypotheses | (10) Isle Royale Simbio postlab questions |
| 2/22 Lab 6: Isle Royale (Simbio) | 2/23 Chapter 13: Coevolution- Mutualism | 2/24 LAB MIDTERM (on labs 1-6) | 2/25 CHAPTER 11: Competition | (20) Annotated Bibliography & list of questions/ hypotheses DUE night before Lab 7 | |
| 3/1 LAB MIDTERM (on labs 1-6) | 3/2 LECTURE EXAM 2: Ecological Parameters | 3/3 Lab 7: Grant Proposal meetings | 3/4 CHAPTER 2(I): Darwin and Evolution | Use Anno Bib to shape background paragraphs | |
| 3/8 Lab 7: Grant Proposal meetings | 3/9 CHAPTER 2 (II): Genetic Drift & Natural Selection | 3/10 Lab 8: Darwins Finches & mutations in HIV (Simbio) | 3/11 CHAPTER 2 (III): Intro to Evolutionary Analyses (HWE) | Finish background/ Literature review (~3 paragraphs) | Postlab questions from both simbio labs (15) |

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|---|---|---|--|--|---|
| 3/15 Lab 8: Darwins Finches & mutations in HIV (Simbio) | 3/16 CHAPTER 6(I): Behavioral Ecology- Mating Systems | 3/17 No Lab | 3/18 CHAPTER 6(II): Behavioral Ecology- Heritability | Work on proposed project section (~3 paragraphs) | Postlab questions from simbio sickle cell (10) |
| 3/22 Lab 9: (Simbio) Sickle Cell & HWE | 3/23 CHAPTER 7: Ecology of Genetic Variation | 3/24 Lab 9: (Simbio) Sickle Cell & HWE | 3/25 Finish chapters & Review for Lecture Exam 3 | Finish the intro/abstract and the final concluding paragraphs | |
| 3/29 Lab 10: Animal Behavioral Lab, Part I: Developing systems & hypotheses | 3/30 LECTURE EXAM 3: Micro and Macro-Evolution | 3/31 Lab 10: Animal Behavioral Lab, Part I: Developing systems & hypotheses | 4/1 CHAPTER 21: Human Global Ecology | (90) GRANT PROPOSAL IS DUE 3/31 midnight! | Collect data for Animal Behavior lab! |
| 4/5 Lab 11: Animal Behavioral Lab, Part II: Data Analysis and Presentations | 4/6 Chapter 21: Climate Change | 4/7 Lab 11: Animal Behavioral Lab, Part II: Data Analysis and Presentations | 4/8 Extra time for Animal Behavior lab presentations and help with peer review questions | Work on peer review of grants | Animal behavior lab: data and presentations (25) |
| 4/12 Lab 12: Nutrient Pollution (Simbio) | 4/13 CHAPTER 17: Pollution & Trophic Structure | 4/14 Lab 12: Nutrient Pollution (Simbio) | 4/15 CHAPTER 17: Ecotoxicology | (20) PEER REVIEWS DUE 4/14 midnight! | Simbio nutrient Postlab questions (10) |
| 4/19 Lab 13: Water Quality fieldwork and testing | 4/20 CHAPTER 22: Conservation Biology | 4/21 Lab 13: Water Quality fieldwork and testing | 4/22 Review for Exam 4 and last round of review for Biome paper | Show Dr. Rose your ppt slides if you want help. | Graphs from water quality testing data (15) |
| 4/26 LAB FINAL (on labs 8-13) & Grant presentations | 4/27 Grant presentations | 4/28 LAB FINAL (on labs 8-13) & Grant presentations | 4/29 Grant presentations | Make changes from peer review and Dr. Rose's comments | (15) Turn in peer reviews of grant presentations |
| FINALS WEEK: | | LECTURE EXAM 4: Applied Ecology (not cumulative) Wednesday 5/5 2:45-4:45 | | (30) FINAL GRANTS due Monday 5/2 midnight | |