

# VALDOSTA STATE UNIVERSITY BIOLOGY DEPARTMENT ECOLOGY & EVOLUTION SYLLABUS BIOL 3250 – Spring 2023

*Instructor Name: Emily Rose, Ph.D.*

*E-mail address: [erose@valdosta.edu](mailto:erose@valdosta.edu)*

*Office Location: Bailey Science Building 2211*

*Office Hours: Tuesday 9:15-11:45, 2:30-5:00pm and by appointment, email for arranging virtual meetings with Zoom [link](#)*

*Lecture location: Bailey Science Center 2202*

*Lecture times: Tuesday & Thursday 8:00-9:15am*

*Lab location: Bailey Science Center 3018 Biology computer lab*

*Lab Sections/times: Wednesday 10-12:50 (Sec C), Wednesday 2:00-4:50pm (sec D)*

## 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:

Textbook: Ecology: Evolution, Application, Integration 2<sup>nd</sup> Edition 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. 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](#).

## Grade Determination:

Assessment	Points	Grading Scale:
Participation in Lab and Lecture	20	≥ 900 pts, A 800-899, B 700-799, C 600-699, D <600 pts, F
Research Grant (90), Final edits (20), Grant Peer Review (20), 1 <sup>st</sup> meeting papers (10), Annotated Bibliography (20)	160	
Grant Presentation (50), Presentation Peer Review (10)	60	
Exam 1,2,3 (100pts each), Final/Exam 4 (150 pts)	450	
Lecture and Laboratory Assignments	110	
Lab Midterm and Lab Final (100pts each)	200	
<b>Total Points</b>	<b>1000</b>	

**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 group efforts to collect the data and work as a team member during the lab assignments. I will be taking attendance for all of our class meetings and points will be deducted for students who are chronically late or missing class. Points will be deducted if you come to class or lab late. If you are not prepared for lab or are disrespectful to your fellow classmates or professor you will lose participation points.

**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. Students who miss more than three labs will forfeit all Laboratory Assignment points.

**Exams:** All lecture exams 1,2,3 will be closed note and administered in person, starting at 2pm and will be due at 3:15pm when lecture ends. The Final/Exam 4 will be administered on-line and will be open note. Lab exams will be in person in the 3018 and will be open note but only for the 3 hours of lab.

**Make-Up Work:** Late assignments will not be accepted and make up assignments will be 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.

**Lecture & Lab Policies:** Guidelines 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 or cold (depending on the time of semester) 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. **Recordings of the Dr. Rose's lectures are not permitted without her permission.**

**How to Succeed in this Course:**

- Attend the weekly PAL sessions to be able to review the material with our PAL mentor, Darshi Patel. She will be reviewing the lecture material, helping to troubleshoot lab activities with you, and provide guidance with the grant proposal process at weekly sessions announced in lecture.
- To be able to recreate graphs/figures, concepts, and examples from lecture on the exams I highly recommend that you recopy your notes/Dr. Rose's ppts 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.
- Although lab exams are open note, you will need to troubleshoot and execute all of the skills we have learned during the labs so take good notes and practice the activities before the lab exams. You will want to review what we did, why we did it, how we did it and what we found in lab.
- Get ahead!!! The deadlines for every assignment this semester are listed in the syllabus calendar so there is no reason to turn in assignments late. Start assignments early to get feedback on them before they are due. Do not blame Blackboard for taking too long when loading your file at midnight.
- Ask questions during class or come to office hours. If you cannot make it to office hours, please email Dr. Rose and schedule a meeting for when you are free.

## Course Policies:

### **Title IX Statement**

Valdosta State University (VSU) upholds all applicable laws and policies regarding discrimination on the basis of race, color, sex (including sexual harassment and pregnancy), sexual orientation, gender identity or expression, national origin, religion, age, veteran status, political affiliation, or disability. The University prohibits specific forms of behavior that violate Title IX of the Education Amendments of 1972. Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex in education programs and activities that receive federal funding. VSU considers sex discrimination in any form to be a serious offense. Title IX refers to all forms of sex discrimination committed against others, including but not limited to: sexual harassment, sexual assault, sexual misconduct, and sexual violence by other employees, students or third parties and gender inequity or unfair treatment based on an individual's sex/gender. The designated Title IX Coordinator for VSU is Mr. Darius Thomas. To view the full policy or to report an incident visit: <https://www.valdosta.edu/administration/student-affairs/title-ix/>

### **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 with disabilities who are experiencing barriers in this course may contact the Access Office (<https://www.valdosta.edu/student/disability/>) for assistance in determining and implementing reasonable accommodations. The Access Office is located in University Center Room 4136 Entrance 5. The phone numbers are 229-245-2498 (V), 229-375-5871. For more information, please visit VSU's Access Office or email: [access@valdosta.edu](mailto:access@valdosta.edu). To request reasonable accommodations for pregnancy and childbirth, contact Christina Kidd, Student Conduct Coordinator at [chkidd@valdosta.edu](mailto:chkidd@valdosta.edu). Please note, you will be required to provide documentation from an appropriately licensed medical professional indicating the requested accommodations are medically necessary.

### **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, 2<sup>nd</sup> 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>

### **Experiential Learning Statement**

This course includes an Experiential Learning opportunity carefully designed to allow students to explore concepts, skills, and principles beyond the traditional classroom, lab, or studio. Students will have opportunities to make connections across campus, collaborate with others, and apply and synthesize what they have studied in the course. In addition to the experience, students reflect on what they have learned during and at the completion of the course/activity to deepen their learning. Reflections help students transfer skills and concepts to different contexts including ‘real-world’ settings. For more information about Experiential Learning please visit <https://qep.valdosta.edu/experiential-learning/>.

### **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 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](#).

# Spring 2023- Dr. Rose's Ecology & Evolution course (BIO3250)

**Note:** The professor reserves the right to make changes to this syllabus as necessary.

Tuesday Lecture	Wednesday LAB	Thursday Lecture	Research Grant	Assignments
<b>1/10</b> CHAPTER 1: Intro to ECOLOGY	<b>1/11</b> Lab 1: Introductions, Syllabus, Excel	<b>1/12</b> CHAPTER 4 Intro to BIOMES	Think about ideas	<b>Practice excel graphing assignment due on BV Sunday Midnight (10)</b>
<b>1/17</b> CHAPTER 5 Intro to BIOMES	<b>1/18</b> Lab 2: Community Ecology analyses	<b>1/19</b> CHAPTER 16: What is a species & phylogenetics?	Start thinking about topics and possible questions	<b>Benthic Diversity Data due on BV Sunday Midnight (10)</b>
<b>1/24</b> CHAPTER 16: Species Diversity- Community Ecology	<b>1/25</b> Lab 3: Species Diversity Fieldwork	<b>1/26</b> CHAPTER 15: Ecological Succession	Start finding papers about your biome	<b>Stats and graphs from class data due on BV Sunday Midnight (10)</b>
<b>1/31</b> <b>LECTURE EXAM 1: Biomes and Ecosystems</b>	<b>2/1</b> Lab 4: Mark/Recap	<b>2/2</b> CHAPTER 8: Demography	Schedule your time slot for Lab 5 or 6's meetings	<b>Lab 4 HW Mark/Recap Sunday Midnight on BV (10)</b>
<b>2/7</b> CHAPTER 10: Life History Strategies	<b>2/8</b> Lab 5: Life History & <i>First Grant Proposal meetings</i>	<b>2/9</b> CHAPTER 9: What limits population growth?	<b>Must have 5 papers uploaded with ideas for grant before meeting (10)</b>	<b>Turn in Lab 5 HW Tables and graph on BV Sunday Midnight (10)</b>
<b>2/14</b> CHAPTER 12: Coevolution- Predator & Prey	<b>2/15</b> Lab 6: Isle Royale (Simbio) & <i>First Grant Proposal meetings</i>	<b>2/16</b> CHAPTER 13: Coevolution- Mutualism	Find 10 papers to help support your grant question, start Annotated Bibliography	<b>Isle Royale Simbio postlab questions by Sunday midnight (5)</b>
<b>2/21</b> CHAPTER 11: Competition	<b>2/22</b> <b>LAB MIDTERM (on labs 1-6)</b>	<b>2/23</b> Finish lectures and review	Write Annotated Bibliography and shape it into background info for Lit Review section	
<b>2/28</b> <b>LECTURE EXAM 2: Ecological Parameters</b>	<b>3/1</b> Lab 7: Darwin's Finches & mutations in HIV (Simbio)	<b>3/2</b> CHAPTER 2(I): Darwin and Evolution	<b>Annotated Bibliography DUE midnight 3/7 prior to Lab 8 (20)</b>	<b>Postlab questions from both simbio labs by Sunday midnight (10)</b>
<b>3/7</b> CHAPTER 2 (II): Genetic Drift & Natural Selection	<b>3/8</b> Lab 8: <i>Second Grant Proposal meeting to design methods with Dr. Rose</i>	<b>3/9</b> CHAPTER 2 (III): Intro to Evolutionary Analyses (HWE)	Use Ann Bib background info for Lit Review section	<b>Figure for HW8 (10) Do the HWE practice problems for lab 9</b>

<b>3/14</b> SPRING BREAK	<b>3/15</b> NO LAB	<b>3/16</b> SPRING BREAK	Finish intro, work on proposed project sections	
<b>3/21</b> CHAPTER 6(I): Behavioral Ecology- Mating Systems	<b>3/22</b> Lab 9: HWE & Animal Behavioral Experimental Design & Analyses	<b>3/23</b> CHAPTER 6(II): Behavioral Ecology- Heritability	See Dr. Rose for help or edits. Finish first “overview” and final “conclusions” paragraphs.	<b>Collect Data for Animal Behavior data</b>
<b>3/28</b> CHAPTER 7: Ecology of Genetic Variation	<b>3/29</b> Lab 10: Data Interpretation & Animal Behavioral Posters	<b>3/30</b> Present Posters for Animal Behavior lab	<b>GRANT IS DUE (90) 3/30 by midnight</b> via Blazeview assignments link!	<b>Animal behavior lab: Collect data, complete data analyses and write up (20)</b>
<b>4/4</b> Finish chapters and review for exam 3	<b>4/5</b> Lab 11: Water Quality fieldwork and testing	<b>4/6</b> <b>LECTURE EXAM 3: Micro and Macro-Evolution</b>	Work on peer review of grant proposals.	<b>Graphs from water quality testing data on BV Sunday midnight (10)</b>
<b>4/11</b> CHAPTER 17: Pollution & Biomagnification	<b>4/12</b> Lab 12: Nutrient Pollution (Simbio)	<b>4/13</b> CHAPTER 17: Ecotoxicology	<b>Grant Peer Review (20) DUE 4/13 by midnight on BV!</b>	<b>Postlab questions from simbio nutrient pollution by end of lab (5)</b>
<b>4/18</b> Chapter 21: Climate Change	<b>4/19</b> <b>LAB FINAL (on labs 7-12)</b>	<b>4/20</b> Chasing Coral	Make changes from peer review/Dr. Rose’s comments.	
<b>4/25</b> CHAPTER 19: Conservation Biology	<b>4/26</b> <b>Grant presentations (50)</b>	<b>4/27</b> Finish lectures and review for final exam	<b>Final Grant edits (20) DUE on BV SUN 4/30 by midnight</b>	<b>Presentation Peer Review (10) by 4/28 midnight on BV</b>
<b>FINALS WEEK:</b>	<b>Tuesday 8-10am MAY 2<sup>nd</sup> 2023</b>			