

# General Ecology – BIO3409.02

[Lab Sections 03, 04, 05, 06]

**Location:** Lecture LDB 220; Lab LDB 130

**Time:** Lecture: TR 11:00-12:20am; Lab MW 11:00-1:50, 2:00-4:50; **Credit Hours:** 4

**Instructor:** Dr. Jeffrey Wozniak

**Office:** LDB 205b; **Phone:** office - 936-294-3759; **Email:** [wozniak@shsu.edu](mailto:wozniak@shsu.edu)

**Office Hours:** TR: 9:00-11am or by appointment

**Course Description and Objectives:** Ecology lecture will introduce the major ecological principles, concepts, classical and contemporary hypotheses dominating the field of ecology. As an introductory general ecology course, students should leave with a thorough understanding of this scientific field, how ecologists conduct research, and the importance of general ecological knowledge. Moreover, this class will help develop critical thinking, oral and written communication, and give the students the tools necessary to link ecological patterns/processes to current human activities.

**BlackBoard and Email:** I will communicate with the class using email via Blackboard (Bb) and email. Thus, I expect you to check your email regularly for information regarding the class. Missing an email announcement is not an excuse for missing an assignment. Moreover, I will post general information about assignments, tests, and labs on Bb. It is your responsibility to obtain these documents and to learn how to navigate Bb, upload assignments to Bb, etc.

**Prerequisite:** Minimum grade of C in BIO 161/111, 162/112

**Text:** Lecture: *Ecology, 2<sup>nd</sup> edition*

By M.L. Cain, W.D. Bowman, & S.D. Hacker

Lab: No Text Required – Library Access is necessary.

**On-Line Component:** This course will include some online components. The on-line activities will include lecture movies (by me) and you-tube videos and readings that further explain ecological topics/principals. The online lectures may replace actual face-to-face lectures.

**Attendance:** Attendance in this class and laboratory is mandatory, expected, and often is directly correlated with a passing grade. If you want to understand and learn ecology, don't miss class or lab.

**Absence and Make-up Policy:** Any points for assignments, participation, or exams missed as a result of an absence cannot be made-up. The only exception is if the absence is planned and approved by the instructor at least **14 days** prior to the date of absence. In this case an alternative assignment will be given and turned in before the absence. No late assignments will be accepted.

**Lecture quizzes (100 pts):** There will be ~ ten 10-point quizzes over various topics covered during lecture. These quizzes will be short (5 to 10 questions), multiple choice, true or false and matching. They will be designed to test concrete comprehension of specific subject matter, i.e., definitions, etc. The best way to study for these quizzes is to study daily and stay on top of the subject material. Some of these quizzes will be given in class and others will be administered through Bb.

**Lecture/Unit Exams (400 pts total):** There will be a total of four 100-point tests, one after every unit. These tests will be multiple choice, short answer, graphical interpretation/synthesis and essay. The tests are designed to evaluate your conceptual understanding of the topic rather than your ability to memorize definitions. The best way to study for these exams is to review your lecture notes from each class. The goal here will not be to memorize the material, but rather to understand it and then apply it to other systems or to expand to other concepts.

**Final Exam (100 pts):** A comprehensive final, testing basic understanding and assimilation of lecture material will be given on the scheduled final exam date – see below. Format of the final will resemble lecture tests.

**Laboratory (400 pts):** The mandatory laboratory portion of this class will reinforce, using a hands-on approach, the 4 major areas of ecological study (i.e., organism, population, community, and ecosystem). For each area of ecology, we

will conduct a complete scientific study following the specific steps of the scientific method. You will be required to actively participate in each step for your grade. Specifics for lab will be presented in the special lab syllabus.

Some lab activities will take place at the Center for Biological Field Studies in Harmon Creek. When in the field, each student should dress appropriately, i.e., no sandals or flip-flops. Rather, each student should purchase an inexpensive pair of rubber boots or hip waders. Boots, long pants and long-sleeve shirts are ideal for fieldwork. There are venomous snakes, ticks, and chiggers at the field station, so proper attire is necessary.

While I will oversee the laboratory sections for this class, I urge you to direct all logistical and day to day questions/emails to your Lab TA.

**Grading:** Your percentage will be calculated out of 1000 total points for the class. Final grades will be assigned based on the following:  $A \geq 90.0\%$ ;  $90.0\% > B \geq 80.0\%$ ;  $80.0\% > C \geq 70.0\%$ ;  $70.0\% > D \geq 60.0\%$ ;  $60.0\% > F$ . There will be no curve and no extra credit.

Assignment	Total Points	Tentative Dates
Lecture Quizzes	100	Unannounced
Unit Tests	400	Specific dates TBD
Assignments (4@25pts each)	100	Specific dates TBD (1/unit)
Final Exam	100	10 December @ 11:00-1:00
Lab Activities & Reports	25% of total grade	Weekly throughout Semester
Total	1100	

As each class moves through the semester/materials at a different pace, I have not given specific dates for assignments or exams – rather we will move at a pace that is appropriate for our class and will have open discussions on when all exams will occur. Ample prep time will be provided for all exams.

**Academic Dishonesty:** I expect all students to maintain honesty and integrity in this class. Any student found guilty of dishonesty will be subject to disciplinary action. Academic dishonesty includes cheating on exams, copying others work, and pasting text directly from the internet (i.e., plagiarism), etc. For a complete listing of the university policy, see:

<http://www.shsu.edu/administrative/faculty/sectionb.html#dishonesty>

**Any form of academic dishonesty will result in a grade of zero for the entire semester.**

**Cell Phone Use:** Cell phone use and text messaging during class hours is prohibited. Please turn off ringers during class. If a call or text is necessary please quietly leave the classroom to do so. Failure to comply with the above will result in expulsion from the classroom. Phones or other similar devices should not be present during testing. Use of these devices during a test is considered de facto evidence of cheating.

**STUDENTS WITH DISABILITIES POLICY:** It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail [disability@shsu.edu](mailto:disability@shsu.edu)). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in

this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

<http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf>

**Visitors in the Classroom:** Visitors (i.e., not registered students) attending the class must be approved by the instructor, and must not cause any disruption to registered students.

**Audit:** You must have the instructor's permission to audit this course, and auditing students must apply through the Registrar's office.

## **Tentative Lecture Topics**

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### ***UNIT 1- INTRODUCTION & ORGANISMAL ECOLOGY***

Syllabus  
Hierarchical Structure of Ecology and Value of Ecology  
Adaptations – Natural Selection  
Physiological Ecology  
Life History Adaptations  
Benefits of Sexual Reproduction  
Sexual selection  
Living in Groups & Altruism  
**UNIT 1 – TEST**

### ***UNIT 2- POPULATION ECOLOGY***

Introduction to Populations  
Dispersion and Population models  
Population Growth  
Density dependent growth  
Life Tables  
Evolution  
**UNIT 2 – TEST**

### ***UNIT 3- COMMUNITY ECOLOGY***

Intro to Community ecology  
Community Assembly  
Patterns in Species Richness  
Succession and Disturbance  
Competition  
The Niche  
Predation and Symbiosis  
The Food Web – material and energy  
Top-Down Bottom-Up Regulation  
**UNIT 3 – TEST**

### ***UNIT 4 – ECOSYSTEM ECOLOGY***

Introduction to Ecosystems: Goods and Services Revisited  
Water and Water Cycle  
Carbon & Carbon Cycle  
Gasses, Global & Local Climates  
Nutrients and Nutrient Cycles  
Ecological Stoichiometry  
Biodiversity Ecosystem Function  
Terrestrial Biomes  
Aquatic Biomes  
**UNIT 4 – TEST**