

LeTourneau University
BIOL 3504 Principles of Ecology and Field Biology
Lecture and Laboratory

Course Syllabus

Objective: To introduce participants to ecological principles that apply to all organisms, including a survey of a diversity of ecosystems. Topics will include abiotic factors of ecosystem dynamics, energetics, populations, community structure, life history patterns, intraspecific and interspecific interactions, and biodiversity. The laboratories will expose the student to factors that define ecosystems, methods used to quantify abiotic and biotic characteristics of ecosystems, and analysis of community structure. Field trips to survey ecosystems of the region will provide other opportunities to gain field experience. All activities and concepts will be explored from a Christian stewardship ethic and a Christian Theistic worldview.

Instructor: Dr. A.G. Jarstfer (jārst-fūr), Professor of Biology
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Office Hours: **T** 8:30 to 9:20 a.m.; **TH** 2:00 to 3:30 p.m. and **W** 11:20 to 1:10 p.m.; **OR by appointment**

Periods: Lecture, **MWF** 1:30 - 2:25 p.m.
Laboratory, **M** 3:00 p.m. until 5:20 p.m.

Locations: Lecture: Glaske C106
Laboratory: Glaske S103

Required Texts: *Elements of Ecology, 5th Ed.*
R. L. Smith and T. M. Smith
Benjamin Cummings, San Francisco, 2003

Policies:

Lecture attendance is to your advantage and is required. *Reading your assigned material before the lecture greatly increases your learning* as I will not necessarily lecture the chapters to you but will seek to **emphasize the important material and supplement it with additional materials**. Check your reading assignments. Failure to attend >75% of class meeting times will result in failure of this course regardless of your scores on assignments.

Laboratory attendance is required and none of the labs may be made up. In advance of any excused absence, you may arrange with me some other way to work through the lab. Check your reading assignment list for the material of a specific lab. Materials will be posted on the Blackboard course site for reference. Failure to attend >75% of class meeting times will result in failure of this course regardless of your scores on assignments.

Diagnosed and documented disabilities. Students enrolled in an institution of higher education are required to self-identify if they would like to request academic support services on the basis of a disability. LeTourneau University encourages a student with a disability to self-identify after admission and to provide required documentation to the Dean of Student Services. Through self-identification and the utilization of appropriate academic services, it is assumed that academic progress must be made. Students needing facility adjustments must notify the Dean of Student Services at 903.233.4462.

Grading: The grades for the lecture and laboratory are combined. Your grade will be based on the number of points earned from Exams, Presentation, and Lab Reports. The Final Exam will be comprehensive. Exams will be a combination of multiple choice, short answer, and long answer. Each exam will include extra credit questions from the same material.

1 Final Exam = 100 pts
2 Lab reports = 100 pts
5 Lab Quizzes = 150 pts
1 Field Trip Work Sheet/Report = 75 pts for Big Thicket and Gulf Coast trip
Arboretum Project Checklist and Map = 150 pts

A = 91%; B = 81%; C = 71%; D = 60%; F = below 60%

Warning!! We will be doing messy things so don't wear your best clothes to work in the Field. It is imperative that we are safe in the field and lab. Any allergies must be reported to the Instructor. Insect repellent will be used frequently.

Cheating on ANY assignment will result in zero points for that assignment.

PROJECTS/DELIVERABLES

A. Laboratory Quizzes and Reports

The instructor will provide directions at the beginning of the lab exercise defining the deliverable from the exercise, whether it is a report, quiz, worksheets, or all of the above. In addition background reading will be noted as applicable.

Quizzes will be 30 points each and will cover the content as well as calculations that relate to the topic at hand.

Reports will require you to detail the background for the experiment, the actual methods used, the resulting data, and a discussion of the meaning of the data and analyses.

B. Arboretum Plant Survey

We have the privilege to help the Longview Arboretum by helping create a checklist of plants present at the site. I have areas for a team of two students to survey. You will create a checklist and a map of your zone. There are a number of resources available in the library and I will be showing you how to do this. In addition you will learn how to use some mapping techniques to locate your zone. This is a significant Collaborative Service project.

C. Field Trips

During this course we will embark on a trip around the region to see, feel, touch, and the environment of several ecosystems. **These are required trips so make arrangements now for people to cover for you.** From my experience, this may prove to be the most long-lasting learning experience as we seek to observe and better understand certain parameters of community structure in diverse ecosystems of the region. This will require camping out, bus riding, getting hot (perhaps cold too), being bug bitten, and perhaps being sunburned. Hopefully you will have a new perspective on God's creation. You may see things that few others see. You will be responsible for a couple of meals but we will strive to keep its cost to a minimum. Your lab fees will provide the transportation and some of the food. Locations will be "The Big Thicket" and Texas Gulf Coast. We will visit a upland savannah, a pitcher plant prairie, and an oak-gum flood plain in the Big Thicket National Preserve. We will visit a salt marsh and a sea shore at the Sea Rim State Park. The trip to the coast will be part of the lab sessions and will include Friday night out of town. We will leave after Chapel Friday November 11th with a return time of Saturday November 12th by about 7:00 p.m.. Do NOT plan anything or commit to anything else during this time. There will be work sheets to complete with information gathered during these field trips.