Exploring natural history of the southwest US, using the UTEP Biodiversity Collections

Biology 1108 - 34 (CRN 21412)
Fall 2019
MW 9:00-11:50 AM, Biology Building Room 206

The University of Texas at El Paso

Instructor of Record

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Lab Manager	***Teaching Assistant***
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Office hours

Greenbaum – Tuesdays 12:30–3:30 PM; email for appointment times

Zhuang – TBA; email for appointment times

Required Text and Materials

Greenbaum, Eli. *Emerald Labyrinth: A Scientist's Adventures in the Jungles of the Congo*. University Press of New England, 2017.

Other assigned readings will be posted on Blackboard

COURSE DESCRIPTION

Where do animals live and is where they live affected by environmental conditions? What does an animal eat? How has a species evolved? Basic information that feeds biological research comes from both field observations and specimens brought back and observed in the laboratory. In this course, we will examine the basic care of natural history collections, how collections document natural history and the various uses of specimens in biological research. Students will examine how basic data collected from specimens is used to understand where species exist and how their distributions are affected through time and the environment with the help of ArcGIS. Students will be introduced through each of the collections at UTEP and develop projects to understand the importance of the collections to the natural history around them.

Learning outcomes:

1) Students will be able to identify ways natural history collections can be used to support research questions.
2) Students will be able to investigate intraspecific variation.

3) Students will be able to build basic mapping skills and create general distribution maps, using ArcGIS.
4) Students will be able to describe how the distribution of a species has changed through time and propose possible explanations.
5) Students will be able to explain the natural history of a species to the general public and scientific community.
6) Students will be able to explore and describe the biodiversity of sites at the Indio Ranch Research Station

Course Policies

LAB COAT

This laboratory requires a lab coat. You will not be able to participate in lab activities without proper attire and safety equipment. Failure to come prepared may result in a grade reduction. You may purchase a lab coat at the university bookstore, at any uniform supply store in El Paso, or online. Along with the required laboratory coat, students are expected to dress appropriately and according to Environmental Health & Safety (EH&S) policies. **This includes clothing that covers vulnerable areas of the body, i.e. CLOSED TOE SHOES, shirts with sleeves, and long pants – no shorts, dresses, skirts, tank tops, or midriffs.** Any student wearing open-toed shoes or inappropriate clothing will not be allowed to participate in the lab (regardless of the assignment). Lack of participation will result in lower evaluation scores from group members.

BLACKBOARD ACCESS

This laboratory will rely on the use of Blackboard for assignments and communication. If you have difficulty accessing Blackboard, please notify an instructor immediately for assistance.

Blackboard, Dropbox, and computer access: You must be able to access and use Blackboard and download some material from Dropbox. All lectures, assignments, and course communications will be provided through the course Blackboard site.

Attendance & Participation: Laboratories are a REQUIRED and ESSENTIAL part of an education in biology. In the absence of a valid University recognized excuse, there will be no opportunity to make up a missed lab. Quizzes, directions, and explanations will generally be given at the beginning of lab. Failure to be punctual to each lab will result in lower evaluation scores from team members. Inability to show up to a lab without a valid excuse will be detrimental to your learning experience and will likely result in a lower course grade.

PLEASE note that there is a required field trip to Indio Ranch Research Station on the weekend during this spring semester. If you can not make this trip, you must notify the instructors early on to discuss makeup activities or reconsider taking the class this semester.

Excused and unexcused absences: You must attend the lab section that you are enrolled in, and complete all lab assignments to get credit for them. If you have an illness or a legitimate excuse

(includes military personnel called to active duty or training, vehicle breakdown) for an absence, arrange with an instructor. The majority of the work in this lab involves working in a group; it is essential that you speak with your lab group if you have missed a lab or have an upcoming excused absence. **More than two unexcused absences will result in a F.**

You must comply with all safety regulations: Students are expected to be familiar with general lab safety as covered in the UTEP Biodiversity Collections Policies and Procedures. Additional safety procedures may be covered for each individual activity. Documents outlining these procedures and regulations will be provided at the beginning of the course

Preparation: Students who prepare for the laboratory meetings ultimately have a better performance record in the course. Prepare for each session by reading the assigned material and completing any pre-lab tasks provided before coming to lab. Quizzes and impromptu presentations may be given at the beginning of any lab meeting.

In-Laboratory Performance: Part of your overall laboratory grade will be based on how you conduct yourself in the laboratory and on your willingness to work as a group with your classmates to develop and implement research and present results.

Assignments: Many labs will include in-lab assignments. Assignment instructions may be posted before the lab or may be presented while in lab.

Late work: Late work is not accepted. This includes arriving to lab after a quiz has been completed, failing to complete a peer assessment, or missing any other deadline. To minimize the effects of the occasional missed assignment or quiz, you may earn up to 50 points of extra credit by completing various tasks related to collection management. See the section below for more details.

Grading Guidelines

Quizzes: will be administered on Blackboard and may or may not be timed or open reading and given in or outside of lab. You should read the required material before completing a quiz, which may mean that reading will be required outside of lab for a quiz in-lab. **In-lab quizzes will generally be given at the beginning of the lab,** if you are late and arrive after the quiz is over, you will receive a zero.

Research skills assignments: will be explained in the lab or on Blackboard and may be due at the end of lab or at some time before the next lab.

Lab Duties: are part of being a member of a research group. As this lab is making use of the UTEP Biodiversity Collections (UTEP-BC), members understand how distribution data is acquired and will contribute to the mission of the UTEP-BC by georeferencing 50 unique localities.

Group Research Project: Students will participate in self-directed group research projects using knowledge and skills gained during the first third of the semester. The result of this project will be a presentation of the group's findings to the rest of the class and a minimum 3 page summary of the

group's findings that will be distributed online as part of a website describing the natural history of the southwest. Part of the project grade will be an assessment of individual participation by group members. The presentation will be assessed individually based on assigned roles (e.g., principal investigator, data analyst), and as a group based on overall quality of the paper/presentation. The group portion of the grade will be the same for every student in a given group.

UTEP Policies

Drop Policy: April 5th is the last day that a student may drop a class or officially withdraw with an automatic "W". It is your responsibility to drop the course. **No drops will be allowed after this date.** The instructor reserves the right to drop a student who registers for the course and never attends a class. Note that if a student has an advisor submit a drop request after the drop deadline without permission from the dean, the instructor will be asked to assign a grade by the registrar, and that grade will be F.

Incomplete Grade Policy: All grades of Incomplete must be accompanied by an Incomplete Contract that has been signed by the instructor of record, student, departmental chair, and the dean. Although UTEP will allow a maximum of one year to complete this contract, the College of Science requests it be limited to month based upon completion data. A grade of Incomplete is only used in extraordinary circumstances confined to a limited event such as a missed exam, project, or lab. If the student has missed a significant amount of work (e.g. multiple assignments or tasks), a grade of Incomplete is not appropriate or warranted.

Plagiarism/Academic Integrity Statement: "Cheating is unethical and not acceptable. Plagiarism is using information or original wording from a paper or website without giving credit to the source of that information or wording: it is also not acceptable. Special measures will be made to detect plagiarized work on all written assignments and exams. Do not submit work with your name that you did not do yourself. If you are directly quoting the work of someone else, you should use quotation marks or italics. Do not submit work for this class that you have prepared for another class. **If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, according to the UTEP policy."** Source: UTEP Office of Student Conduct

UTEP's policies regarding academic integrity apply in this course. Students caught cheating or plagiarizing on any assignments will receive disciplinary action and will be reported to the Dean of Students. Information on this policy can be found at http://admin.utep.edu/LinkClick.aspx?link=docs%2fStudent+Conduct+and+Discipline.pdf&tabid=71896&mid=163588

Civility Statement: Please be respectful of all students' right to learn without disruptions. In line with this statement, please make an active effort to keep the talking to a minimum during lectures and presentations. Also, either turn cell phones off or turn them to vibrate mode prior to the start of class.

Accommodations: If you require or have documentation of need for specific accommodations, please contact the Center for Accommodations and Support Services (CASS) within the first two weeks of classes. CASS can be reached at http://sa.utep.edu/cass/ (915) 747-5148 or cass@utep.edu. It is located at the Union Building East Room 106. Contact your instructors within the first three weeks of class.

Campus Carry: Persons holding a Concealed Handgun License can lawfully carry their handgun into a UTEP classroom as long as the gun remains concealed. Open carry remains prohibited on campus. In other words, none of us should see (or be able to tell that there is) a gun at UTEP. Call the University Police at 747-5611 or dial 911 if you see any individual on campus with a handgun or other type of weapon. For more information on campus carry, see http://sa.utep.edu/campuscarry/; for more information on overall campus safety, see http://admin.utep.edu/emergency. **However, the laboratory is a designated Exclusion Area, and no concealed handguns are permitted.**

Grades

Description	Percentage	Description
QUIZZES	10 %	1 % per quiz
LAB DUTIES/ GEOREFERENCING	10 %	
RESEARCH SKILLS ASSIGNMENTS	20 %	
RESEARCH PROPOSAL PRESENTATION	5%	
GROUP RESEARCH PROJECT	30 %	Part Individual, Part Group
PARTICIPATION	10 %	
PROJECT REPORT	15 %	Part Individual, Part Group
TOTAL	100%	

Laboratory Schedule

The following schedule is subject to change based upon the need for reduced/additional instruction in a given area or the timetables of student research projects.

Date	Description	Quiz	Assignments Due
22-Jan	Lab will not meet		
28-Jan	Lab will not meet Importance of natural history collections		1. Team Member Directory Card
30-Jan	Pre-assessment and team building	1. Syllabus/Reading	
4-Feb	The basics: time and locality data	2. Field notes	
6-Feb	Georeferencing Workshop		

11-Feb	Georeferencing practice	3. Georeferencing reading	2. Georeferences
13-Feb	Intraspecific variation lab: tour of herpetology collections		3. Sample data of intraspecific variation
18-Feb	GPS Coordinate collecting lab	4. GPS coordinate collecting prelab	
20-Feb	An introduction to ArcGIS		4. GIS Skills
25-Feb	Introduction to ArcGIS	5. GIS reading	
27-Feb	Using databases and importing data	6. Arctos reading	5. Brainstorming questions
4-Mar	Factors affecting species distribution - looking for resources	7. Species distribution reading	
6-Mar	Basic statistics		6. Stats/Excel
11-Mar	Literature review and data introduction	8. Literature Review	7. Literature review
13-Mar	Project management / Research Proposals		8. Research question
18-Mar	spring break		
25-Mar	spring break		
25-Mar	Georeferencing and independent research		
27-Mar	Georeferencing and independent research		9. Design draft
1-Apr	Georeferencing and independent research		
3-Apr	Georeferencing and independent research		10. Research Status Report
8-Apr	Georeferencing and independent research		
10-Apr	Georeferencing and independent research		
15-Apr	Georeferencing and independent research		11. Research Status Report
17-Apr	Georeferencing and independent research		
22-Apr	Interpreting research results		12. Research Status Report
24-Apr	Interpreting research		

	results / Powerpoint presentation skills	
29-Apr	Preparation for Indio Ranch Trip	
1-May	Identification of Indio Ranch Morphospecies	9. Quiz on Morphospecies
6-May	Powerpoint presentations	
8-May	Finish photos and turn in 3 page summary	