

The University of Texas at El Paso
Department of Biological Sciences
College of Science

Course # and Title: BIOL 5313 (CRN 18211) - Biogeography

Credit Hours: 3 credit hours graduate credit

Term: Fall, 2018

Course Meetings and Location: MW 6:00-7:20 PM, HSCI 213

Prerequisite Courses: There are no official prerequisites, although graduate students lacking upper division undergraduate coursework in ecology, evolution, and/or environmental science should consult with the instructor prior to the first day of class.

Prerequisite Knowledge: Essential will be basic knowledge of ecological and evolutionary principles, such as should have been learned in an introductory biology course for science majors (e.g., BIOL 1306 at UTEP), and could be reviewed (or refreshed) by readings in any modern biology textbook for such a college course. Desirable is refined knowledge in either ecology or evolutionary biology, such as covered in upper-division undergraduate courses in these subjects. Helpful will be a rudimentary knowledge of the planetary spatial geography, such as would have been learned by a sixth-grade elementary student in the mid-decades of the 20th century (i.e., when fact-based physical geography was actually part of the 6-12 Curriculum).

Instructor: Dr. Carl S. Lieb

Office Location: “Old Biology” Building B-204

Contact Information: Office telephone: 747-6987 email: clieb@utep.edu

Warning: The office telephone is the most reliable means for time-sensitive communication. If you insist on using email, and do not receive a reply within a few days, send it again (... and again).

Office Hours: 10:30-11:30 AM MW, 4:30-5:30PM R, and by appointment (see contact info, above).

Textbook : There is *no* textbook. It is highly recommended, however, that each student have available to them a modern introductory biology textbook for emergency use when “holes” in their scholarly background in biological sciences are manifested. Geographic information, on the other hand, can usually be accessed online. Nevertheless, the longer it has been since the student encountered these subjects, the more necessary such reference availabilities will be needed to avoid reaching an unfortunate content “event horizon.”

Course Objectives (Learning Outcomes):

Your instructor expects graduate students enrolling in this course to bring with them a scholarly interest in the world’s biota and the natural history of the species that make up that biota. The course objectives are intended to primarily impart “advanced” content, not merely current biogeography research methodologies and its attendant esoteric literature.

This edition of BIOL 5313 will primarily focus on what is sometimes termed “evolutionary biogeography.” The alternative approach, the so-called “ecological biogeography,” is well addressed at UTEP by undergraduate and graduate offerings in that deal with topics community ecology, ecosystem ecology, and conservation biology. The two approaches to biogeography do interact with one another in theory and practice, and the important such interactions will indeed be taken up as necessary, and when (or if) enthusiasm of the participants for such explorations waxes.

Course Activities/Assignments: This edition of BIOL 5313 is a lecture-and-discussion class. Lectures come from the instructor, and will be intended to lay the groundwork for class discussion. Whereas these lectures may be stupefyingly soporific, the class discussions arising from lecture content or outside-of-class assignments will hopefully liven the sessions up and promote some measure of cerebral activity. Thus, some scholarly preparation for each class will be necessary so that each participant may make a positive contribution to the discussion, and be paying attention/note taking with respect to the ideas and concepts that are covered in that discussion.

Assessment of Learning: Two examinations will be given, one at the mid-term (15 October), and the other timed to coincide with the final examination of the class. Your instructor will also be able to subjectively detect active learning by the frequency and quality of the individual’s contributions to the discussions.

Grading Policy: The assessment components contribute proportionately to the final grade as follows:

- 33% Mid-term examination
- 34 % Carrying your weight in discussions [which performance includes attendance]
- 33% Final examination

Drop Policy: The student drop date is 2 November 2018. . After 2 November, the office of the Dean of Science will not process “W”s except in cases of complete withdrawal from the University. Therefore, students who find themselves in academic trouble during the semester should promptly consult with your instructor so that their options can be explored (that is, don’t wait until the end of the semester to relate a tale of woe).

Attendance Policy: Quality cerebral function notwithstanding, **attendance at every class meeting by every student is expected.** Nevertheless, life is full of unexpected events. For the expected, It is best to let your instructor know in advance of any unavoidable absence.

In attendance or not, students are held responsible for all materials presented, discussed, or assigned during class time.

Academic Integrity Policy: Despite his outward cynicism, your instructor more-or-less believes in the general goodness and honesty of his fellow human beings. Nevertheless, those who try to shatter his illusions and betray the norms of academic integrity will be turned in to the Dean of Students for disciplinary action. You may review UTEP policy in these matters at <http://academics.utep.edu/Default.aspx?tabid=23785>.

Civility Policy: Civility between the student members of the class, and between the instructor and the students, is expected. Please use temperate language when speaking to one another and with Dr. Lieb.

Silence your cell phone before entering the classroom; please do not take calls during class time. Avoid all noisy endeavors not related to the matter at hand (talking, eating, snapping chewing gum, and, of course, snoring).

Your instructor will do his best to be there by the start of the class (6:00PM), please emulate him with timely appearances as well. *Nevertheless, he would prefer you to be a few minutes late to being completely absent for the entire period (as a rare event, not something that happens frequently!).* The general rule is: if you must enter or leave the room when class is in session, do so as quickly and quietly as possible.

Disability Policy: If a student has or suspects he/she has a disability and needs an accommodation, he/she should contact the Center for Accommodations and Support Services (CASS) at 747-5148 or at <cass@utep.edu> or go to Room 106 Union East Building. The student is responsible for presenting to the instructor any CASS accommodation letters and instructions. *In these, as in other important matters, communicate with your instructor in person or by telephone rather than relying on e-mail.*

Military Call-up: Your instructor understands that students engaged in military service may be called up and deployed at any time, an event that can affect their family members as well as themselves. Please consult with your instructor as soon as the orders come through, so arrangements for completion or suspension of academic work can be attempted.

Course Schedule/Calendar: The following ambitious schedule of lecture topics may be subject to modification as the semester deteriorates. Moreover, should the lecture topics fall behind (or get ahead) in the schedule, the examinations will in that case follow the pace of the lecture material present.

Course Calendar

27 & 29 August – Review of syllabus and course policies. Introduction to the geographic range concept, and review of evolutionary concepts/vocabulary relevant to biogeography.

3 Sept: Labor Day, no class

5 Sept: review of basic concepts/vocabulary pertaining to abiotic components of ecosystems

10 Sept: review of other basic ecological concepts/vocabulary relevant to biogeography

12 & 17 Sept: History of biogeography as a discipline

19 September - Guest lecture and/or special assignment

24, 26 September, 1 & 3 October: Geographic ranges and speciation [species concepts, gene flow, modes of speciation, dispersal vicariance]

8 & 10: October: Community macroevolution [biomes, geologic time, climate change]

15 October – Midterm examination

17 October – Community macroevolution, continued [extirpation, extinction, mass extinction]

22 October – Community macroevolution, continued [interspecific competition, niche partitioning, competitive exclusion, pre-emptive exclusion]

24, 29 & 31 October Evolution of biodiversity [on islands, terrestrial and marine global patterns]

5 & 7, 12 & 14 November: Measuring biodiversity [sampling issues, abundance versus density, effective population size, density independent versus density dependent effects]

19 & 21, 26 & 28 November: Biogeographic data interpretation [Fossils, phylogenetics, phylogeography, cladistics biogeography, Stephen Hubbell's Unified Neutral theory of Biodiversity and Biodiversity] {*N.B: Wednesday 21 November is not a holiday*}

3 & 5 December: Catch-up days and wrap-up of course

12 December (Wednesday) – Second (final) examination, 7:00 PM-9:45PM

Edition of 26 Aug 2018