

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

**Course # and Title:** BIOL 3321, Evolution (CRN 21383)

**Term:** Spring, 2019

**Course Meetings and Location:** TR 12:00-1:20PM, PSYCH 115

**Prerequisite Courses:** BIOL 3320 Genetics (co-enrollment *only by permission of instructor*)  
and BIOL 1305-1107, and BIOL 1306-1108 [or equivalent]

**Instructor:** Dr. Carl S. Lieb

**Office Location:** “Old” Biology Building B-204

**Contact Information:** Office telephone: 747-6987 (**preferred, or even better, come by his office**); Email: [clieb@utep.edu](mailto:clieb@utep.edu) Warning: Dr. Lieb’s 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:** TR 1:45-2:45 PM, TR 10-11AM, and by appointment (see contact info.)

**Textbook (Optional):** A textbook is not required for success in this semester’s edition of BIOL 3321. Some students, especially those planning on future research careers in evolutionary biology, or those planning to teach biology in high schools, may wish to acquire a basic reference text that goes into far greater detail than BIOL 3321’s course content. There are at least three recent texts that are written for upper-division evolutionary biology courses: 1) Zimmer, Carl & Douglas J. Emlen. 2016. *Evolution: Making Sense of Life*, Second Ed.; 2) Futuyma, Douglas J. and Mark Kirkpatrick, 2017. *Evolution*, Fourth Ed. ; and 3) Herron and Freeman, 2014, *Evolutionary Analysis*, Fifth Ed.. Each of these texts has different emphases; you should consult with Dr. Lieb about your needs before investing in any of them.

**HOWEVER, it is highly recommended that** each student have available to them a modern introductory biology textbook *for biology majors* for emergency use should their “gaps” in scholarly preparation for BIOL 3321 reach a biological content event horizon.

**Nevertheless, neither only perusing materials posted on Blackboard, or only reading any textbook, will not and cannot substitute for faithful, without-fail attendance at the lecture sessions, taking satisfactory notes thereon, and thoroughly mastering the biological content of those notes.**

**Course Objectives (Learning Outcomes):** The primary learning outcome for this course is that every student will achieve a level of understanding of evolutionary principles, concepts, and hypotheses commensurate with a bachelor’s degree in biological sciences. A secondary learning outcome is that each student will, by exposure the basic evolutionary concepts and thinking, be moderately well-equipped to go on (should they wish to do so) to the more advanced topics and techniques that support undergraduate and graduate research in this biological discipline.

**Course Activities/Assignments:** BIOL 3321 is a lecture class [*see above comment about any textbook not substituting for attendance and note-taking!*]. The conceptual material is presented

in a sequence such full understanding of one concept is desired before the next one may be taken up; it is thus important that students keep pace with the instructor's exposition. For this reason, a brief weekly quiz will be given at the beginning of each Thursday class session. Students must be on-time to class to take the quiz. Missed quizzes, because of absence or tardiness, and regardless of how valid the reason, are not subject to being taken or made up. Although this seems draconian, in fact only a subset of the highest-score quizzes will be used toward the final grade (and thus missing one or two is not a disaster). In some limited situations, it may be desirable to take the Thursday's quiz in advance of classtime; make such arrangements directly with the instructor.

**Assessment of Learning:** Two in-class examinations will be given, one on 28 February, one on 18 April, and a comprehensive Final Examination on the required date and time for the course (14 May @ 1:00PM). There is neither a term paper nor "extra credit" in this course.

A required pretest on genetics and evolution will be given on the first class day (22 January). This anonymous test is for course and curriculum evaluation purposes and has no effect on student grades. However, any student who is absent or otherwise does not complete the pretest on 22 January must make arrangements with the instructor to take the pretest before Census Day (6 February) in order to avoid being involuntarily dropped from the class roll.

**Grading Policy:** The examinations will be given on the following dates, and will contribute proportionately to the final grade as follows:

Examination I (28 February): 25%

Examination II (18 April): 25%

Comprehensive Final Examination (14 May): 25%

Regardless of the performance on the other exams, the comprehensive Final Examination must be taken to pass the course. The balance of the grade will come from: weekly quizzes (20%) and attendance: 5% (detected in part by random checks, see Attendance Policy, below).

**Examination No-show Policy:** Failure to take Exam I (and report in prompt fashion to Dr. Lieb; see below) may result in the student being arbitrarily dropped from the class roll.

A missed lecture examination contributes zero percent toward the student's final course grade, and thus represents a serious perturbation in his/her class progress and a likely catastrophe for grade expectations. These situations are handled expeditiously on a case-by-case basis at the discretion of your instructor, who **insists** that the following rule be observed: If a student must miss an examination (including the Final) because of illness, death in the family, University-sponsored event, or any other reason other than their own demise, he or she must contact Dr. Lieb **in person or by telephone** (@ 747-6987, leave voicemail message if not answered), either **BEFORE** the test date or **WITHIN 48 HOURS following the time of the start of the examination (and for Exam I or II, before the next class period)**. **NEVER, EVER, RELY ON E-MAIL FOR CONTACTING DR. LIEB UNDER THESE CIRCUMSTANCES.** The student is expected to personally discuss the situation with Dr. Lieb within that 48-hour period, and arrange for an immediate solution.

**Drop Policy:** The student drop date is **5 April**. The results of the first lecture examination and several quizzes will be known by that time, and students are thus expected to act wisely in their own interest. The instructor may proactively (but not reliably) drop a student who has taken the

pre-test, or any examination or quiz, or has been recorded as coming to class even once; he expects withdrawal to be taken by the student's own initiative by this 5 April deadline. The Dean of Science Office will not sign off on a "W" after the student drop deadline unless the student are withdrawing from all classes (and the University). Students who find themselves in academic trouble during the semester should promptly consult with their instructor so that their options can be explored (i.e., don't wait until the end of the term to relate a tale of woe).

**Attendance Policy: Attendance at every class meeting by every student is expected.**

Attendance will be checked randomly during the semester, usually during towards the end of the lecture period. Being "caught" AWOL (Absent Without Leave, that is, an *unexcused* absence) will result in the loss of 1% of the student's attendance component of their final grade for each detected absence -- until that 5% is lost completely. Also, woe to the student who comes to class on Thursday for the quiz, only to sneak out immediately afterwards.

*More importantly*, 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 polite & temperate language at all times.

Silence your cell phone before entering the classroom; please do not take calls or use your electronic devices *for any purpose* 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 (12:00 Noon) 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 prevailing rule is: *if you must enter or leave the room when class is in session, do so as quietly and quickly as possible*.

Timeliness is especially important for examinations. In general a late-coming student will not be allowed to take an examination after the first student to complete it has left the room.

**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](mailto: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.

**Military Call-up:** Your instructor understands that students engaged in military service may be called up and deployed at any time; moreover such deployment may also affect family members of soldiers who are taking classes. Please consult with Dr. Lieb as soon as orders come through.

## Course Calendar

The following ambitious schedule of lecture topics may be modified as the semester deteriorates. **Examination dates, however, are fixed.** Should we fall behind (or get ahead) in the schedule, the content of Examinations I and II will follow the pace of the topics presented.

22 & 24 January – Review of course policies; Pre-test; evolutionary biology as a scientific discipline; Pre-Darwin evolutionary thinking; Darwinian evolution.

29 & 31 January – The development of genetics and post-Darwin evolutionary thinking

5 & 7 February - Principles of natural selection at the population level

12 & 14 February – Allele frequency change in populations; costs of selection

19 & 21 February – Genetic Drift

26 February – Microevolutionary processes wrap-up

### **28 February – Examination I**

5 & 7 March - Group and sexual selection

12 & 14 March – Species, homology, and phylogeny as evolutionary concepts

*19 & 21 March – Days included in Spring Break (no classes)*

26 & 28 March – Phylogenetic trees, taxonomy

2 & 4 April – Geographic relationships. allopatric speciation

9 & 11 April – Sympatric, parapatric, and peripatric speciation

16 April – Extinction and mass extinction

### **18 April – Examination II**

23 & 25 April – Vicariance and dispersal, allelic coalescence, phylogeography

30 April & 2 May - Evolution of novelty; adaptive radiations, convergent evolution

7 & 9 May –Macroevolutionary processes wrap-up.

### **14 May (Tuesday), 1:00 – 3:45 PM – Comprehensive Final Examination**