Course # and Title: BIOL 5322, Advanced Topics in Evolution – MAT section (CRN 27090)
Credit Hours: 3 credit hours upper division
Term: Spring, 2014

Course Meetings and Location: W 05:30-8:20 PM, Worrell Hall 205
Prerequisite Courses: BIOL 3320 Genetics and BIOL 3321 (Evolutionary Theory) [co-enrollment not permitted], or equivalent, or permission of instructor. This section of BIOL 5322 is restricted to students enrolled in the Master of the Arts in Teaching (MAT) program, College of Science [NO EXCEPTIONS TO THIS RESTRICTION!].

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: M: 4:00-5:30PM; T: 9:30-10:30AM, W: 10:00-11:00AM; and by appointment (see contact information, above).

Textbook (Optional): Zimmer, Carl & Douglas J. Emlen. 2013. Evolution: Making Sense of Life. Roberts and Company, Greenwood Village, Colorado ISBN: 9781936221172 (Hardback) 9781936221363(Paperback). This textbook is not required for success in this MAT edition of BIOL 5322, but some students may wish to have a fairly comprehensive reference work on hand (and this book is current and about as good as any). It is highly recommended, however, that each student have available to them a modern introductory college-level biology textbook for emergency use when “holes” in their scholarly preparation in the biological sciences are manifested. [note: do not purchase such an intro biology textbook just for this class; see Dr. Lieb first]. Nevertheless, only reading any textbook cannot substitute for faithful, without-fail attendance at the lecture sessions, taking satisfactory notes on what is communicated and transpires, and thoroughly mastering the biological and pedagogical 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 the ability to teach topics relating to evolutionary biology in a secondary school education context.

Course Activities/Assignments: This class will consist of a combination of lectures by Dr. Lieb, question-answer discussions with him, and the development and presentation of a lesson plan dealing with an assigned topic by each student.
Assessment of Learning:

A required pretest on genetics and evolution will be given on the first class day (21 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 21 January must make arrangements with the instructor to take the pretest before Census Day (5 February) on penalty of being permanently dropped from the class roll.

A take-home mid-term examination will be released to the students during the class session of 5 March, to be completed and returned to Dr. Lieb no later than the beginning of class on 19 March. There will be a required in-class comprehensive examination will be given on 14 May. Three grades will also be assessed for the individual Lesson Plan (see below).

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

- Class attendance and participation: 10%
- Take-home Midterm exam (due 19 March): 25%
- Lesson Plan draft (due 2 April): 10%
- Lesson Plan Presentations 30 April, 7 May): 15%
- Comprehensive Final Exam (14 May, 7PM): 25%
- Final version of Lesson Plan (due no later than 15 May): 15%

No-show Policy: Failure to appear for the final examination or on the assigned date of the Lesson Plan presentation will be handled on a case-by-case basis at the discretion of Dr. Lieb, who insists that the following two rules be observed: regardless of the reason for missing: 1) the student must contact Dr. Lieb by telephone (not email! @ 747-6987), either BEFORE the test or WITHIN 48 HOURS following the time of the start of the examination/presentation and well BEFORE the next class period; and 2) the student must actually speak with Dr. Lieb about the resolution of the situation before the next class period (translation: don’t just show up at the next class meeting with a tale of woe).

Drop Policy: The student drop date is 4 April 2013. The results of the first lecture examination should be known by that time, and students are thus expected to act wisely in their own interest. Dr. Lieb will NOT drop a student who has taken any examination, or has been recorded as coming to class even once; withdrawal action must be taken by the student’s own initiative by this 4 April deadline. After 4 April, a student may drop the course with a “W” only by written petition to the Dean of Science through Dr. Lieb. Students who find themselves in academic trouble during the semester should promptly consult with the instructor so that their options can be explored (that is, the end of the semester is a bit late to reveal an earlier personal disaster).

Attendance Policy: On-time attendance at every class meeting by every student is expected. More importantly, in attendance or not, students are held responsible for all materials presented, discussed, or assigned during class time. Moreover, attendance/participation contributes 10% towards the final grade. Students are permitted one (1) no-questions-asked absence where half or more of the class-time is missed on any particular Wednesday evening. Unexcused absences after that, as well as gross tardiness and early defections, will be duly noted and subtracted from the student’s attendance grade.
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.

All work in BIOL 5322 will be individual, not collaborative.

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 your instructor.

Silence your cell phone before entering the classroom; please do not take non-emergency calls during class time. Avoid other noisy endeavors not related to the matter at hand (irrelevant conversation, eating, snapping chewing gum, snoring, etc.).

Your instructor will do his best to be there by the start of the class (5:30 PM) 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 quietly and quickly 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.

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 affecting attendance come through, so arrangements for completion or suspension of academic work can be made.

Course Schedule/Calendar

The examination dates are fixed; other than that, the sequence of lecture topics listed below may be subject to modification as the semester deteriorates. The midterm examination will follow the content and pace of the topics as they are taken up; as we may not get to all of the items on the below list, the final examination will be adjusted accordingly.

Critical Dates

21 January, 5:30 PM: Pre-test on first day of class
19 March, 5:30 PM: Take home mid-term examination due
2 April, 5:30 PM: Lesson plan assignment draft due
30 April, 7 May – Lesson plan presentations during class periods
14 May, 7:00-9:45 PM: In-class Final Examination
15 May – Last date to turn in final Lesson Plan
Sequence of Course Topics

1) Teaching evolutionary thinking in post-rational and science-skeptical America
2) Overview of evolutionary phenomena
3) Applications of evolutionary thinking I: phylogenetic hypotheses
4) Applications of evolutionary thinking II: evolution of pathogens
5) Natural selection and adaptation
6) Intraspecific variation
7) Overview of genetic principles that impact evolutionary concepts
8) Departures from Hardy-Weinberg I: selection, mutation, non-mating, migration
9) Departures from Hardy-Weinberg II: genetic drift, bottlenecks, inbreeding
10) Group and sexual selection
11) Genomic evolution
12) Modes of speciation
13) Evo-devo
14) Macroevolution I: extinctions, mass extinctions, evolution of novelty, adaptive radiation
15) Macroevolution II: convergent evolution, co-evolution, pre-emptive exclusion
16) Human evolution

Version of 20 December 2013