

COURSE SYLLABUS

TITLE: EVOLUTION - (FALL 2023)

I. Course numbers, title, prerequisites, time:

BIOL 3321 (CRN 10478) - Prerequisites: BIOL 3320 (Genetics).

TR: 09:00 –10:20 am (Science/School of Nursing, 217).

II. Instructor Information:

Dr. Jerry D. Johnson, Professor of Biology

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Office Hours: MW: 9 – 10:20 am

TR: 12 -1 pm, or by appointment

III. Objectives: This course is predicated on the fact that modern biological science is founded on contemporary scientific theories associated with **Biological Evolution (BioEvo)**. During the semester, students will be able describe, discuss, and comment on the following general scientific ideas associated with the study of BioEvo, which will be the subjects for competency examinations. See calendar for tentative dates.

- A. Scientific methodology and its characteristics, including limitations and why the different levels of what are called "creationism" is not science.
- B. Historical overview of the development of the principles of BioEvo.
- C. Taxonomy based on evolutionary relationships within phylogenies.
- D. Microevolution (adaptive or chance changes in population genetic structure).
- E. Macroevolution (evolution of novel traits or conditions of traits).
- F. Speciation (formation of new genetically separated lineages from ancestral lineages).
- G. Species concepts (historical and contemporary).
- H. The fact that genetic changes in populations through time are the substance of BioEvo and separations in ancestral gene pools produce new species.
- I. The basics of evolutionary changes --- what we know and what we don't know.

III. Evaluation: Undergrads - There will be three exams given during the semester. Exams are worth 50 points each, so the total number for the course is 150 pts. Anyone missing a lecture exam without an excused absence will automatically have two points deducted from the exam grade when it is made up. Makeup exams must be taken within two class periods of the original unless other arrangements are made. Grading scale will be the traditional 90% [A], 80% [B], 70% [C], 60% [D], and below 60% [F]. Extra credit may become available for **all** students in some instances as determined by the instructor.

Graduate Students - All graduate students taking this course will follow the above evaluation scheme, plus write a short paper on an evolution subject worth 20 pts (total of 170 pts overall).

IV. Methodology: Course objective will be covered by the following methodological approaches: **A.** Classroom lectures and discussions. **B.** Readings from the textbook or other literature. **C.** Handouts from instructor on specific subjects. **D.** Study guides for exams will be given out before each exam, which includes reading assignments.

V. Textbook (Required): *Why Evolution is True*; Jerry A. Coyne. 2009. Viking, New York.

(Recommended Reference): *Evolution (5th Ed.)*, Futuyma & Kirkpatrick. 2023. Sinauer Associates, Inc., Sunderland, MA 01375 U.S.A.

VI. Calendar (Tentative): Fall 2023.

Aug. 29-Sept 21: Introduction, scientific methodology, historical overview, Biosystematics, and phylogenetics.

Sept. 26: **FIRST EXAM**

Sept. 28- Nov. 2: Levels of evolution, speciation, and species concepts.

Nov. 7: **Official drop date is 3 November.**

Nov. 9-Dec. 5: **SECOND EXAM**

Evolutionary biogeography. Genetic changes in populations, Rates of evolutionary change. Evidence for evolution at all levels.

Thanksgiving Holiday is 23-24 November.

Dec. 12: **Final Exam - 10 am - 12:45 pm**

VII. Course rules:

Attendance is mandatory if you want to get the most out of this course; attendance will be taken during the beginning of each class period. Up to 3 extra credit points will be given for regular attendance. You may be dropped from the course if you miss two consecutive class periods without prior consent. It is expected that all students will behave in an adult manner; unruly persons will be asked to exit the classroom. Turn off all personal smart phones and remove earpieces during class, or risk being asked to leave the classroom; laptops are allowed for **note taking only**. Cheating may lead to dismissal from class. If you have a disability, contact Disabled Student Services Office (OSSO); 747-5148; dss@utep.edu; Union Bldg. E, room 106. **I will use UTEP e-mail to distribute handouts, so check it regularly, and bring a copy of handouts to class.**

Qualifying Statement: This course is predicated on the modern scientific principles of bioevolutionary theory. It is not a forum to express political or personal views of unscientific agendas. I am not trying to convert anyone away from personal beliefs, but to inform you what is accepted by mainstream science now, and why. This is a science course, and as such, I will not present unscientific assumptions of any sort as being factual, although we may occasionally discuss some of them.