

BIOL 281- Evolution Discussion: Monday 1:25-2:15; 2:30-3:20 PM, STRONG 237 (1 credit)

Instructor: Jessica Dreyer (jmdreyer@vols.utk.edu)

Office: Hesler 103 **Office Hours:** By appointment

Required Texts & Materials:

All readings will be provided on Canvas as PDFs

Course Description: We will explore in greater depth the material presented in lecture (BIOL 280) through case studies, discussion of articles and essays written by actual evolutionary biologists, and in class activities.

**Corequisites: BIOL 280*

Learning Objectives:

- Formulate, test, and revise an evolutionary hypothesis based on logic and evidence
- Interpret and critique case studies related to scientific inquiry of evolutionary biology
- Demonstrate understanding of evolutionary patterns
- Improve scientific communication skills

| Date | Topic | Due/Readings |
|--------|---|--|
| Jan 15 | No Class – MLK Day | |
| Jan 22 | Introduction / Importance of Evolutionary Biology | Dobzhansky, 1973; Futuyma, 1995; Padian (Nature essay) 2008. 2 submitted questions from readings |
| Jan 29 | Phylogenetics | Activity |
| Feb 5 | More phylogenetics | Activity |
| Feb 12 | Hardy Weinberg Equ, Genes in Populations, Mutation, Drift | Activity |
| Feb 19 | More Pop Gen | Activity |
| Feb 26 | Natural and Sexual Selection | Cook and Saccheri 2012; Jones and Ratterman 2009, 2 questions |
| Mar 5 | The Story of Tiktaalik | Devonian times: Recent findings: “Fish Out of Water”, “Fishes with Legs”, “Acanthostega”, Tiktaalik”, “Tulerpeton”; Opportunity knocked: “Devonian Trans.” and “Tetra. Answer”. http://www.devoniantimes.org/ . 2 questions |
| Mar 12 | No Class – Spring Break | |
| Mar 19 | Species concepts and speciation | Watch Decoding Neanderthals https://www.youtube.com/watch?v=tevSkylmvXk Read Wiley 1978 (2 questions over either video or reading) Supplemental read Wright 1932 (dense stuff check out the Wikipedia explanation) Species concepts info attachment |
| Mar 26 | Domestication and Artificial selection | Read Chapter 1 of Darwin’s <i>Origin of the Species</i> 2 questions |
| Apr 2 | Scientific debate and controversies over evolution | Watch “Intelligent Design on Trial” http://www.pbs.org/wgbh/nova/evolution/intelligent-design-trial.html Supplemental watch: “Inherit the Wind” (ITW not required but is entertaining); 2 questions over the material or 1 question |

| | | |
|--------|--------------------------------------|--|
| | | <u>and one commonly used argument against the validity of evolution</u> |
| Apr 9 | Science, Pseudoscience, | Gould & Lewontin, 1979; Asimov, 1989; Scott, 2003; <u>2 questions TOTAL</u> |
| Apr 16 | Applications of evolutionary biology | Carroll 2014. 2 questions concerning the paper you are writing (class help) |
| Apr 23 | Evolution and disease/medicine | Nesse 2008; Palumbi 2001 2 questions |

**Scoring rubric for Evolution Discussion (BIO 281)
Dreyer – Spring 2018**

Name _____ Week of _____

Topics Covered _____

Total score _____/20 points

| | Component | 5 | 4 | 3 | 2 | 1 | 0 |
|--------------|---|--|---|---|---|---|--|
| ___/5 points | Email Questions | 2 or more relevant and stimulating questions emailed before the next meeting | | | 1 mildly interesting question before the next meeting | | 0 questions sent, or irrelevant questions sent, or questions sent too late |
| ___/5 points | Attendance | Attend every class session on-time (no unexcused absences) | | | 1 unexcused absence/late appearance | | More than 1 unexcused absence/late appearance |
| ___/5 points | Personal participation in discussion | Consistently contributes well-reasoned and justified opinions; kick-starts “dead air”. | | | Occasionally contributes, but opinions not clearly or only partially justified. | | Wall-flower |
| ___/5 points | Engaging others in discussion | Consistently seeks input from classmates; tries to have classmates flesh-out their contributions | | | Occasionally interacts with classmates | | Ignores classmates; no attempt to engage others in discussion |

(adapted from Hickok, 2001)

Your grade will be based on the above rubric and each week you will receive a grade for that week which will be tallied and averaged for all of the weeks.

Everyone should participate in class in an engaged manner, as if your grade depended on it – because it does.

Things to avoid when writing your weekly questions

AVOID

- Overly broad questions that do not have reasonably feasible answers
- Overly simplistic questions that have very short definite answers
- Questions that are too closely related
- Questions that are obviously answered within the assigned material (to me this means you didn't read it).
- Other questions that show you did not read the material (such as questions with incorrect premises).
- Poorly worded questions or ones that are too vague (If I can't understand it then it's hard for me to decide if it's good or not).
- Questions that show a deep misunderstanding of the assigned material.
- Questions that are not related to the material (They can be on a different topic but at least show the link or how you came to this question while reading the material)
- Questions that are scientifically ill-informed (obviously does not apply to the "evolution criticism" questions I ask).
- If I ask for something specific or give options, try to stay within the guidelines
- Turning them in too late (remember there's a gimme window, if it doesn't inconvenience me then it's not late... but this time can vary. Turning it in before 12:00 PM [NOON] each Friday will ALWAYS be on time).
- **Make sure to use proper subject headings:**
- [BIO 281 (start time of your class) Questions week ____] then whatever else you want. If this is not exact it will greatly inconvenience me because it will not register with my searches. If it is emailed incorrectly it may be lost in email-mess-space and may not be graded on time.

Lab/Discussion - Format and Grading

The labs and discussions will allow you to explore selected topics in depth. The format is based heavily on class participation and is intended to be interactive, both between the instructors and students, and particularly among you, the students. Our intent is to involve you in your own learning thereby making you responsible for the content and making the course content relevant to your interests and concerns.

At least once in the term, each student will be responsible for preparing a single page summary of one of the assigned readings, and for presenting a brief (no more than 10 min) synopsis of the major issues addressed in that reading and the authors background.

Contribution to class discussion is central to your role in this class. To stimulate this activity, you are to develop and distribute 2 email questions before each discussion. These questions should

concern issues relevant to the topic assigned for the upcoming class meeting. At least one of these questions should directly cite relevant material in the readings or lecture. During class discussions you will be expected to clearly articulate your point(s) of view and to engage your classmates (and instructors) in the dialogue.

Prior to each computer lab or activity you will be provided with questions regarding evolutionary processes. By e-mail, prior to the lab or in the beginning of lab, you will respond to these questions with predictions regarding your expected outcomes of those processes.

Grades for the labs/discussions will be determined by your presentation to the class and your performance as based on the attached rubric.

Other course information

Disability Services: If you need course adaptations or accommodations because of a documented disability, please contact me privately to discuss your needs. If you have questions or concerns about disabilities or emergency information to share, please contact Disability Services: 2227 Dunford Hall; 974-6807; Email: ods@utk.edu; Website: <http://ods.utk.edu/>).

Counseling Center: <http://counselingcenter.utk.edu/>
900 Volunteer Boulevard, 865 974-2196, Email: counselingcenter@utk.edu

Academic Assistance:

Tutoring: The Division of Biology does not offer tutoring services. Contact the Student Success Center and the Academic Support Unit of The Office of Minority Student Affairs for information about tutoring opportunities.

- **Student Success Center:** The comprehensive source for information, services, and resources to assist your success at UT:
<http://studentsuccess.tennessee.edu/studentsuccesscenter/>
 - 1817 Melrose Avenue, and 812 Volunteer Boulevard, 865 974-6641, Email: studentsuccess@utk.edu
- **Academic Support Unit of The Office of Minority Student Affairs** offers some tutoring services available to all students, but openings are limited and are filled quickly. The office offers other types of academic assistance and support as well:
<http://omsa.utk.edu/services/>
 - 1800 Melrose Avenue, 865 974-6861, Email: omsa@utk.edu

Technical Assistance:

Canvas, clickers, or general information technology assistance:

- <http://remedy.utk.edu/contact/>
- Help Desk: 865 974 9900 (M – F, 8:00 – 5:00)
- OIT Computer Support Service Center and Walk-In Help Desk: Commons South, 2nd floor Hodges Library
- Turning Technologies (clickers): 866 746 3015

University Policies:

By registering at the university, the student neither loses the rights nor escapes the duties of a citizen. **Enjoying greater opportunities than the average citizen, the university student has greater responsibilities. Each student's personal life should be conducted in a context of mutual regard for the rights and privileges of others.** It is further expected that students will

demonstrate respect for the law and for the necessity of orderly conduct in the affairs of the community.

Students are responsible for being fully acquainted and for complying with the University catalog, handbook, and other rules and policies relating to students. Failure or refusal to comply with the rules and policies established by the University may subject a student to disciplinary action up to and including permanent dismissal from the University.

ACADEMIC INTEGRITY IS THE CORE VALUE OF LEARNING COMMUNITIES

University of Tennessee Standard of Conduct #1: “Cheating, plagiarism, or any other act of academic dishonesty, including, but not limited to, an act in violation of the Honor Statement.” You are expected to abide by The University of Tennessee honor statement in Biology 150 and in all of your university activities:

“An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.”

Penalties for academic dishonesty assessed by the instructor may range from the grade of zero for the assignment, to an F for the course. All infractions will be reported to the Office of Student Conduct and Community Standards, the Dean of the College of Arts and Sciences, and the Dean of the College in which the student is enrolled. The Office of Student Conduct and Community Standards may charge a student with violating Standard of Conduct #1 regardless of the response of the instructor to the alleged academic dishonesty. You should read and be familiar with the requisites of academic honesty and what constitutes academic dishonesty as outlined in the 2014-2015 Undergraduate Catalog and Hilltopics.

PRINCIPLES OF CIVILITY AND COMMUNITY

The principles encourage all members of the campus community to foster a learning environment where the differences of our diverse culture are valued, respected and celebrated.

Civility is an act of showing regard and respect for others including: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Ultimately, civility is treating others as we would like to be treated. Our community consists of students, faculty, staff, alumni, parents of UTK students and campus visitors. Community members affect each other's well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected.

By affirming the value of each member of the university community, the campus asks that all its members adhere by the following principles:

- **INCLUSIVITY** - We are welcoming to all and hostile to none. We foster an open community in which educational goals may be pursued.
- **DIVERSITY** - We respect the diverse backgrounds of all members of our community and welcome the opportunity for interpersonal and group interactions.
- **DIALOGUE** - We value and encourage, and facilitate free exchange of diverse ideas and points-of-view along with free speech and expression. However, we discourage uncivil speech or expression that infringes upon the ability of others to express themselves.
- **COLLEGIALITY** - We value an environment that facilitates collegial relationships, encourages mutual understanding among diverse individuals, and leads to addressing issues and differences in an atmosphere of mutual respect and civility.

- RESPECT - We believe that a person's views, ideas, and behavior best reflect the goals of the academic community when the dignity of each individual is respected and when members of the community are considerate of the feelings, circumstances, and individuality of others.
- KNOWLEDGE - We encourage development of a civil community that values critical inquiry, debate, discovery, and innovation to better the world through teaching, research and service.
- INTEGRITY - We value academic honesty and integrity by all members of the academic community.
- LEARNING - We believe that learning is an interpersonal growth experience that fosters appreciation for diversity.
- AWARENESS - We believe it is important to recognize how others view and relate to the community and recognize that we are part of a larger community.
- RESPONSIVENESS - We encourage all community members to speak out against incidents involving bigotry and other types of incivility so the university can fulfill its responsibility of responding in a fair, timely and consistent fashion.

THE INSTRUCTOR RESERVES THE RIGHT TO REVISE, ALTER AND/OR AMEND THIS SYLLABUS, AS NECESSARY. STUDENTS WILL BE NOTIFIED IN CLASS, ON CANVAS AND/OR BY EMAIL OF ANY SUCH NECESSARY REVISIONS, ALTERATIONS AND/OR AMENDMENTS