

BIOL 222: EVOLUTION
M 10-11:25am; W 8:30-9:55

FALL 2009
Prereq. R120:101&102

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Office Hours: MW 1:30-2:30

Introduction and Syllabus

For future biologists, scientists or simply informed citizens, a fundamental understanding of evolutionary biology is absolutely essential. As Dobzhansky famously quipped “Nothing in Biology makes sense except in light of Evolution.” Despite this, most students (yes, even pre-meds!) make it through high school and university without truly grasping the meaning behind his statement. Why is Evolution so important? How does it alter our perception of our world and ourselves? This course will attempt to answer these questions while giving students a detailed understanding of the mechanisms of evolution and the scientific methods employed in evolutionary analysis. Topics that will be covered include the development of evolutionary theory, the history of the evolution of life on Earth, the genetic basis of variation and heredity, natural selection, evolution and development, and speciation.

GRADES

- 1 Midterm Exam (100 points)
- 1 Final Exam (120 points)
- 3 Quizzes (25 points each)
- 5 Homework Assignments (10 points each)

TEXT

- 1) Futuyma, D. J. 2009. Evolution (Second Edition). Sinauer Associates, Inc.

Additional Readings: TBA.

Tentative Lecture Syllabus

Day	Date	Topic	Schedule & Reading Assignments
M	31-Aug	What is Evolution and why do we study it?	Chapter 1; Chapter 23 (623-631)
W	2-Sep	Historical Perspectives	Chapter 1, cont'd
M	7-Sep	Labor Day (no class)	
W	9-Sep	History cont'd; Classification & Phylogeny	Chapter 2 (17-21)
M	14-Sep	More on Phylogenetic Analysis	Quiz 1 ; Chapter 2 (22-43)
W	16-Sep	Patterns of Evolution	Chapter 3
M	21-Sep	Natural Selection and Adaptation	Chapter 11; Article due
W	23-Sep	The Genetics of Natural Selection; Origin of Variation	Chapter 12; 303-308

M	28-Sep	The Origin of Genetic Variation cont'd	Chapter 8
W	30-Sep	More on variation	Quiz 2; Chapter 9
M	5-Oct	Genetic Drift: Evolution at Random	Chapter 10
W	7-Oct	Natural Selection Revisited & Phenotypic Evolution	Chapter 13; Article due
M	12-Oct	The Evolution of Life Histories	Chapter 14
W	14-Oct	Sex and Reproductive Success	Chapter 15
M	19-Oct		Midterm Exam
W	21-Oct	Conflict and Cooperation	Chapter 16
M	26-Oct	Species	Chapter 17
W	28-Oct	Speciation	Chapter 18; Article due
M	2-Nov	Coevolution: Evolving Interactions Among Species	Chapter 19
W	4-Nov	The Evolution of Biodiversity	Chapter 7
M	9-Nov	Evolution in the Fossil Record	Chapter 4
W	11-Nov	A History of Life on Earth	Chapter 5; Article due
M	16-Nov	The Geography of Evolution	Quiz 3; Chapter 6
W	18-Nov	Geographical patterns, cont'd.	
M	23-Nov	Evolution of Genes and Genomes	Chapter 20
W	25-Nov	Thanksgiving (no class)	
M	30-Nov	Evolution and Development	Chapter 21; Article due
W	2-Dec	Macroevolution: Evolution above the Species Level	Chapter 22
M	9-Dec	Evolutionary Science, Creationism & Society	Chapter 23
	*TBA	Final Exam	

*The final exam WILL be held during the regular final exam period. DO NOT make arrangements to leave town prior to this, as taking the exam early will NOT be an option.

Homework Assignments. As a way of reinforcing the everyday relevance of Evolution, students should be scanning the popular media throughout the semester looking for articles that are relevant to topics discussed in class. Believe me, these will not be difficult to find – a daily peruse of cnn.com, yahoo.com, the New York Times, etc., will likely yield plenty of potential articles. Five times during the semester, students are required to turn in an article they have found along with a short synopsis and discussion of how the article relates to something we have discussed in class. The synopsis and discussion should be no more than 1 page. Articles must be recent (no more than 1 month old) and NOT from scientific periodicals. You must attach a print copy of the article along with your synopsis.

Class Policies

Attendance. I expect you to attend lecture. It will be very difficult for anyone to do well in this class without attending lecture on a regular basis. Regardless of whether you are in class or not, however, you are responsible for everything which is discussed in lecture, everything which is assigned as class reading, and any handouts which are given in class. You are expected to make your own arrangements for access to class notes or handouts that you missed. As a study aid, I

will post the lecture slides by the end of each week. Keep in mind that the slides only form an outline for the material covered in class and are therefore not a good substitute for class attendance. If you choose to use a laptop for taking notes during class, please refrain from checking e-mail or browsing the Internet – if you are caught doing so, I will ask you to put your computer away immediately.

Make up exams, quizzes and late assignments. Make up exams and quizzes will be possible only with a doctor's or a dean's letter or with prior approval. If you have a serious reason for missing an exam, you must call me BEFORE the scheduled exam period to notify me that you cannot take the exam. You are then responsible for arranging with me to make up the test or quiz within two days. Late assignments will be accepted, but penalized 10% of the points available for each 24-hour interval that they are late. E-mailed assignments will be accepted, but at your own risk – i.e., if the file I receive is corrupted or unreadable, it will be counted as late.

Academic dishonesty. I will have zero tolerance for academic dishonesty, including plagiarism or cheating. Instances of dishonesty will be punished by a zero on the assignment and consultation with the office of the Dean of Students to determine if further action is required.

Office hours. I will be in my office in Colton during office hours (unless otherwise noted) and will be happy to meet with students who have questions or concerns. I am happy to answer questions via e-mail during these times. However, if you e-mail me outside of these times, I cannot guarantee how quickly I will be able to respond. Please be patient and you will get a response.