



BSCI 106 : PRINCIPLES OF BIOLOGY II

ECOLOGY AND EVOLUTION

Dr. Jeffrey S. Jensen, Fall 20__, MWF 9-10, HJP 0226

Texts: 1) Biological Science, 3rd Ed. Scott Freeman. 2008. Pearson Education, Inc. ISBN: 0-13-224950-2

2) Into the Jungle. Sean Carroll. 2008. Benjamin Cummings. ISBN: 978-0-7380-3908-4

3) Biological Sciences 106 Lab Manual. Jeffrey S. Jensen. 2009. HaydenMcNeil ISBN: 978-0-7380-3384-6

"No one with an unbiased mind can study any living creature, however humble, without being struck with enthusiasm at its marvelous structure and properties" -- Charles Darwin

Date	#	Lecture	Readings	Laboratory
(M) Aug. 30	1	Course mechanics/overview	None	No Lab
Ecology – The Context of Life				
	2	Intro to ecology	1125-27; 1139-46; Skim biomes	
	3	Population growth	1173-93	
(M) Sept. 6		Labor Day – No Class		Introduction
	4	Human population growth - Can we expand forever?	1187-90	
	5	Competition	1196-1202	
(M) Sept. 13	6	Predators and Prey (Last day to drop without a W)	1202-05	Aquatic Ecology
	7*	Symbiosis/mimicry (First graded use of Clickers)	1207-09 (SC: Ch. 3)	
	8*	Community ecology	1209-16; 1218-19	
(M) Sept. 20	9*	Food webs	1222-30	Lotic Ecology
	10*	Nutrient cycling and human impacts	1230-41	
	11*	Biodiversity issues	1244-60	
Evolution – The Unifying Idea in Biology				
(M) Sept. 27	12	This view of life – Patterns in nature (Yom Kippur)	4-15; 481-84 (SC: Ch. 1,2)	Scientific Analysis and Presentation
		EXAM 1 (100 pts.) - Lectures 1-11		<i>Scientific Writing Assignment due in lab</i>
	13*	Evidence for evolution - Darwin and his detractors	484-89	
(M) Oct. 4	14*	Five easy pieces: The Premises of Natural Selection	490-500 (SC: Ch. 8)	Evolution by Natural Selection <i>Aquatic Ecology Results sheet due in lab</i>
	15*	Mendel/Meiosis: Why Mom and Dad aren't like buckets of paint	243-58; 260-62	
	16*	Mendel/Meiosis: Why Mom and Dad aren't like buckets of paint (continued)	265-76	
(M) Oct. 11	17*	Types of Variation: Genotypes, Phenotypes, and Evolution	281-89	Meiosis and Mendel
	18*	Natural Selection revisited	Review 490-500; 508-11	
	19*	Hardy-Weinberg as a null model - Being equal, immobile, unchanging, and indiscriminating	503-08; 511-20	
(M) Oct. 18	20*	Special Topics - Sex, Sexual Selection, and "Women are from Venus, Men are from Mars" <u>Problem set 1 due at the beginning of lecture – Not accepted late!</u>	258-60; 520-23	Population Genetics
	21*	Special Topics – Social Behavior	1167-70; Box 51.1	<i>Aquatic Ecology Lab due in lab</i>
	22*	On the origin of species - How does the tree of life branch?	526-41	
(M) Oct. 25	23	Catch up, Q&A - <u>Problem set 2 due at the beginning of lecture – Not accepted late!</u>	None	Social Behavior
		EXAM 2 (100 pts.) - Lectures 12-23		
The Shape of Life				
	24	The tree of Life - Phylogenetic Reconstruction	543-48	

(M) Nov. 1	25*	Origins (a.k.a. up from the ooze and ready to cruise)	18-9; 43-6; 67-9; 73-9	Phylogeny reconstruction <i>Inheritance and Evolution</i> <i>Assignment due in Lab</i>
	26*	Prokaryotes - The little organisms that run the world	566-84; 589; 175-79; 215	
	27*	The rise of Eukaryotes: - E pluribus unum	593-610; 615-16	
(M) Nov. 8	28*	Land Ho! (Part 1) – Plants (Last day to drop with a W)	626-61 (except taxonomic boxes)	Plant Diversity and Evolution
	29*	More Adventures in Multicellularity - Fungi	664-85 (except taxonomic boxes)	
	30*	The Shape of Life: On the move - Animals	688-703; 706-09; 712-34	
(M) Nov. 15	31*	The Shape of Life: Land Ho! (part 2) – More animals	737-62	Animal Diversity and Evolution
		More Special Topics		
	32	Ancestors and contemporaries - the tangled web of Hominid evolution	763-66 (SC: Ch. 4)	
		EXAM 3 (100 pts.) - Lectures 24-31		
(M) Nov. 22	33*	Macroevolution (Creeps and Jerks in the Fossil Record)	548-64 (SC: Ch. 5,6)	No Lab
	34*	Behavioral Ecology	1149-67	
		THANKSGIVING		
(M) Nov. 29	35*	Ecology and evolution on Islands	TBD	Hominid Diversity and Evolution
	36*	Parasite ecology and evolution	1205-07	
	37*	Darwinian Medicine, or Why nurses are like mosquitoes	TBD	
(M) Dec. 6	38*	Evolutionary Biology of Aging	TBD	LAB PRACTICAL
	39*	Intelligent Design	TBD	
		Recap	None	
		8-10AM! FINAL EXAM (150 pts.) Comprehensive, emphasis on 32-39		

A * next to the lecture number indicates a graded clicker quiz for that day.

Lecture Grading: A total of 500 points are possible in the lecture section of the course. See attached sheets for details

Exams (350 pts.): There will be three midterms (100 pts. each) and one comprehensive final (150 pts.). The lowest midterm will be dropped.

Clicker Questions (100 pts.): There will be a total of 100 points devoted to the use of clickers. 29 lectures (indicated with a * in the schedule above) will have graded clicker questions worth a total up to five points/lecture, but only the top 20 scores will count.

Concept Maps (50 pts.): You will develop concept maps during the semester. I will describe details in class and on the course web site.

Laboratory Grading: A total of 280 points are possible in the laboratory section of the course. You will receive a sheet detailing laboratory grading in lab.

<p>Lecturer Contact Information: Dr. Jeffrey S. Jensen BioPsych 2229 jensen@umd.edu; 301-405-5912 Office Hours by appt.</p> <p>Laboratory Coordinator Contact Information: Mr. Hans Lemke 2107 HJPatterson BSCI106@umd.edu; 301-405-6897</p>	<p>Course Web Site: http://www.elms.umd.edu</p> <p>Mastering Biology Website: http://www.masteringbio.com</p> <p>Some Useful University Web sites</p> <p>Learning Assistance Service - http://www.counseling.umd.edu/LAS/index.html The Writing Center - http://www.english.umd.edu/writingcenter Office of Student Conduct - http://www.studentconduct.umd.edu/</p>
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Some fun and useful web sites. Note – the content of these web sites may differ from what we discuss in class. Exams will reflect the content presented in class, regardless of what you might encounter elsewhere.

<http://tolweb.org/tree/phylogeny.html>

The Tree of Life web site – Lots of information on phylogeny.

<http://www.ucmp.berkeley.edu/exhibit/phylogeny.html>

An excellent site describing the meaning and practice of phylogeny reconstruction

<http://www.pbs.org/wgbh/evolution/>

Companion site for PBS Evolution series

<http://evolution.berkeley.edu/evosite/evo101/index.shtml>

Excellent introduction to evolution

<http://www.talkorigins.org/>

Web site devoted to the Evolution/Creation issue