

# ECOLOGY AND EVOLUTION (BI OL 3250 A,B,C) -- Fall Semester 2008

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 Biol. Dept. 333- 5759

Office Hours: M 12, W 4, other times by appointment.

Texts : Smith, R.L., and T.M. Smith. 2001. Ecology and field biology. 6<sup>th</sup> ed.  
 Benjamin Cummings, San Francisco, CA. 771 pp.  
 Hall, B.K., and B. Hallgrimsson. 2008. Strickberger's Evolution. 4<sup>th</sup> ed.  
 Jones and Bartlett, Boston, MA. 762 pp.

**\*\*STUDENTS ARE RESPONSIBLE ON EXAMS FOR ALL INFORMATION FROM LECTURE NOTES, HANDOUTS AND ASSIGNED READINGS.**

Lecture: four 100- pt. lecture exams.

\*Tentative Exam Dates: Sep 14, Oct 17, Nov 14, Dec 6 (Thurs, 10:15- 12:15 am)

Lab = ca. 35% of course grade, from writeups of field/laboratory exercises; including original investigations and computer simulations.

## LECTURE SCHEDULE

Week #	Topic	Chapters Evolution (V), otherwise Ecology	in:
1	Introduction to Ecology	1	
1	History and Fundamentals of Evolutionary Theory	V1- 3	
2	The Nature of Variation	Skim V9 - 10	
2 - 3	Species and Phylogenies	V11, Skim V12	
3	"Evo- Devo"	V13	
4 - 5	Population Genetics and the Mechanisms of Microevolution Patterns of Macroevolution	V21- 23 V24	
6 - 7	Physical and Physiological Ecology Conditions and Resources	Skim 4,7,9	5 ,6,8 2,27
	Nutrient/Mineral Cycles Niche Concepts	pp. 253-	Skim 25,26 62;383- 84
8 - 9	Population Ecology: Demography, Dynamics, & Density- dependence	10,11,	skim 12
10-	11 Reproductive Ecology & Life Histories		13
11-	12 Interspecific Competition		14
	13 Foraging Ecology, Predator- Prey		15,16
14	Community Structure & Dynamics, Stability, Diversity, & Complexity	20	
15	Ecosystem Development, Island/Landscape Ecology, Conservation Biology and Preservation of Biodiversity		21,22,23

Tentative Laboratory/Field Schedule	Assignment (pts.)
Week 1 -- Intro to Inland Coastal Plain Ecosystems. (**READ Ecol. pp. 12- 17; Skim Ch. 28- 31 + Appendix A for ideas**)	Hypotheses (10)
2 -- Phylogenetic Rules and Reconstruction (also, set up Bacterial Selection experiment)	Assignment (10)
3 -- Population Genetics Computer Simulations	Scientific Paper (15)
4 -- TBA	
5 -- Bacterial Selection	Scientific Paper (25)
6 -- Ecological Transect sampling I	TBA
7 -- GRASSY POND BIOBLITZ! FRI. 6 pm thru SAT., SEPT. 28- 29	
8 -- Human Demography	Life Table (20)
9 -- Community Ecology Field Experiment I	
10 -- Community Ecology Field Experiment II	
11 -- Analysis of experimental data	Scientific Paper (35)
12 -- Community Ecology Field Experiment II	
13 -- Community Ecology Data Analysis	Scientific Paper (45)
14 -- Mark- Recapture and Pop. Estimation Simulation Report	(20)

NOTE: Thursday, October 11 is the last day to withdraw from this or any course

Some Interesting and Possibly Helpful Websites:

On Evolution-- <http://thisviewoflife.org/>

Online Biology Text --  
<http://www.estrellamountain.edu/faculty/farabee/biobk/BioBookEVOLI.html>

Companion site for your Evolution Text:  
<http://biology.jbpub.com/evolution/>

Companion site for your Ecology Text:  
[http://occawonline.pearsoned.com/bookbind/pubbooks/smith\\_efb/](http://occawonline.pearsoned.com/bookbind/pubbooks/smith_efb/)

## Ecology (BIOL 3250) – Fall 2018 Expectations of Students

1. The text chapters will serve as your introduction and background to the lecture topics. Therefore, read them carefully, preferably before the lecture. Otherwise, you may find that you are lost! Success in this course demands that you attend every day and come to class prepared.
2. On weeks that I inform you we will be in the field, be prepared to leave for the field promptly at lab time - this includes APPROPRIATE ATTIRE (long pants, boots). It may be hot or cold. We may encounter briars, chiggers, fire ants, ticks, mosquitoes, and snakes; you are responsible for your own protection against these as well as the climatic elements (I can't control either). You may not make up missed labs; I will deduct points from your grade for any lab absences beyond one.
3. An important part of this course is the writing of laboratory reports and scientific papers. We will be collecting data in the field and lab and analyzing the data as a group. You will be receiving written and verbal instructions for preparing a scientific paper early in the semester. I expect you to share the basic data and results of certain analyses. I expect each and every person to do his or her own writing, however. Copying of phrases or sentences from references or even slightly modified phrases and sentences "borrowed" from these sources constitutes plagiarism and will not be tolerated in this course. Putting quotation marks around such phrases, even with proper attribution (citation) is not much better; the idea is to use your own unique set of words.

Borrowing of sentences or paragraphs from your previously written papers or others' papers is a plagiarism. I 581 (es)-5 (e so)1ep002 Tcscila5( )JTJ 0.0016 (so)-95 (e)-r anpa6r( cer)-1 016 TwamyaTC

## BIOL 3250 Expectations (cont'd.)

Ecological fieldwork can be fun and rewarding, but at times it can be hard work under rigorous conditions. If you are not used to either of the latter two, be prepared for a learning experience that may enrich your life in wa