Biology 3600 Evolution Syllabus

Tentative schedule, Fall 2011

Class time: TR, 9:35 – 10:55 AM

Location: ES&T L1205

Instructors and contact information:

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General Information

Goals: To gain a comprehensive knowledge of evolutionary biology. This includes focus on processes (e.g., natural selection, genetic drift) and resulting patterns (e.g., genome organization, phylogeny, and the fossil record). Emphasis will be placed on a conceptual understanding of the subject with examples taken from the recent primary literature.

Textbook**:** *Evolutionary Analysis, 4th Edition*; S. Freeman and J.C. Herron, 2007

Honor Code: Students are expected to abide by the Academic Honor Code (viewed online at http://www.registrar.gatech.edu/rules/18.php).

Exams: There will be four exams during the semester. Exams may consist of multiple choice, short answer, and/or essay questions. Questions will be taken from assigned readings and class lecture. You are responsible for material covered in assigned readings even if it is not presented in class; similarly you are responsible for material presented in class even if it is not in the textbook. There will be no make-up exams, unless the absence is excused by the Dean of Students. Exams will typically be worth 100 points. *Problems/Essays:* In addition to exams, students will complete a problem set or essay associated with each fourth of the class (i.e., a set of problems prior to Test 1, an essay or set of short answer questions prior to Test 2). Submission of completed problem sets will receive 20 points each (total 80 points). Note that the problem sets may not be graded in the same detailed oriented ay as the midterms, but the submission is required for the points. Late submissions will receive zero points. In addition, students will have in class activities and class participation worth up to 20 points. *Total* possible points in the class: 500.

Grading**:** Grades will be assigned at the end of the semester as follows: A = 90 to 100%; B = 80 – 89%; C = 70 – 79%; D = 60 – 69%; F = < 60%. The grading criteria may change. You may request that any question on any exam be re-graded, however, we reserve the right to re-grade the entire exam. Unfair questions will be identified based on the class results; if more than 85%

of students incorrectly answer a question, the question may be dropped from the exam at our discretion. Historically, final grades have been adjusted 2-5 points.

Attendance: Performance in this class correlates strongly with attendance in lecture. Students who anticipate the necessity of being absent from class because of religious observance must provide written notice of the date(s) by the fourth class meeting. Some of the lecture materials will be made available on T-Square.

Recitation: During the semester, students will have an additional opportunity to master the key concepts in Evolutionary biology, by participating in additional learning activities during recitations. Recitation will be announced in the class and on the T-square.

How *do you get an A in Evolution?* Read, read, and read all the materials, come to the lectures and recitations. Ask questions and discuss topics in class. Understand concepts and how they are applied rather than memorizing names or formulas. Take careful notes and review them regularly, perhaps in small study groups. This class will be different from any other classes you have taken: you will not get good grades if you just memorize the material without understanding conceptual aspects of this field. Good Luck!

Schedule

Date	Topic and Reading	Notes:
August 23	Introduction: Evolution of HIV (Ch. 1)	
August 25	The Pattern of Evolution (Ch. 2)	
August 30	Darwinian Natural Selection (Ch. 3)	
September 1	Constructing Evolutionary Trees (Ch. 4)	
September 6	Mutations and Genetic Variation (Ch. 5)	
September 8	Selection and Mutation (Ch. 6)	
September 13	Selection and Mutation (Ch. 6)	
September 15	**Exam 1**	
September 20	Migration and Nonrandom Mating (Ch. 7)	
September 22	Genetic Drift (Ch. 7)	
September 27	Linkage Disequilibrium (Ch. 8)	
September 29	Quantitative Traits (Ch. 9)	
October 4	Testing Adaptive Hypothesis (Ch. 10)	
October 6	**Exam 2**	
October 11	Sexual Selection (Ch. 11)	
October 13	Kin Selection (Ch. 12)	
October 18	Fall recess	
October 20	Aging and Life Histories (Ch. 13)	
October 25	Human Health (Ch. 14)	
October 27	Speciation (Ch. 16)	
November 1	Speciation (Ch. 16)	
November 8	**Exam 3**	

November 15	Phylogenomics (Ch. 15)
November 22	Origin of Life (Ch. 17)
November 29	Cambrian Explosion (Ch. 18)
December 1	Development and Evolution (Ch. 19)
December 6	Human Evolution (Ch. 20)
December 8	Last day of Classes/ Review
December 13	**Exam 4- Final exam (8:00 AM - 10:50 AM)**

This syllabus is subject to change!