

Biology 3600: Introduction to Evolutionary Biology Syllabus

Tentative schedule, spring 2013

Class time: TR, 12:05 – 1:25 PM

Location: Klaus 1447

Instructors and contact information:

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Lecture TA: Pavithra Chandramowliswaran, PhD candidate, pavithramowli@gatech.edu

Office hours: By appointment

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.

Group Presentation: Our first project in Evolution class will be a group work on several important topics in population genetics and a presentation of your study in front of the class. This project will be graded by the peers as well and it is worth up to 50 points. More details about this in class.

Problems/Essays: In addition to exams and the group project presentation, students will complete a problem set or essay associated with the second half of the class (i.e., a set of problems prior to Test 3, an essay or set of short answer questions prior to Test 4). Submission of completed problem sets will receive 20 points each (total 40 points). Note that the problem sets may not be graded in the same detailed oriented way 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 10 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	Instructor:
January 08	Introduction: Evolution of HIV (Ch. 1)	MMB
January 10	Patterns of Evolution (Ch. 2)	MMB
January 15	Darwinian Natural Selection (Ch. 3)	MMB
January 17	Constructing Evolutionary Trees (Ch. 4)	EAG
January 22	Mutations and Genetic Variation (Ch. 5)	MMB
January 24	Selection and Mutation (Ch. 6)	MMB
January 29	Group Presentation I part/ exam review	MMB
January 31	Midterm 1	
February 05	Migration and Nonrandom Mating (Ch. 7)	MMB
February 07	Genetic Drift (Ch. 7)	MMB
February 12	Group Presentation II part	MMB

February 14	Linkage Disequilibrium (Ch. 8)	MMB
February 19	Quantitative Traits (Ch. 9)	MMB
February 21	Testing Adaptive Hypothesis (Ch. 10)	MMB
February 26	Midterm 2	
February 28	Sexual Selection (Ch. 11)	EAG
March 05	Sexual Selection (Ch. 11)	EAG
March 07	Kin Selection (Ch. 12)	EAG
March 12	Aging and Life Histories (Ch. 13)	EAG
March 14	Human Health (Ch. 14)	EAG
<i>March 19 - March 21: Spring Break!</i>		
March 26	Speciation (Ch. 16)	EAG
March 28	Speciation (Ch. 16)	EAG
April 02	Midterm 3	
April 04	Phylogenomics (Ch. 15)	EAG
April 09	Origin of Life (Ch. 17)	EAG
April 11	Origin of Life (Ch. 17)	EAG
April 16	Cambrian Explosion (Ch. 18)	EAG
April 18	Development and Evolution (Ch. 19)	EAG
April 23	Human Evolution (Ch. 20)	MMB
April 25	Human Evolution (Ch. 20)/ Review	MMB
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April 30	Final Exam/ Exam 4 (11:30 – 2:20)	

This syllabus is subject to change!