EVOLUTIONARY BIOLOGY

Fall 2010  Syllabus, 25 Aug 2010

EEB 2245/2245W; Tu-Th 12:30-1:45  
Braun 124

Instructor: Chris Simon, Professor EEB  
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e-mail is the best place to leave messages.

Office hours: Flexible (including nights or weekends if necessary) except in the morning before our class. See me after class or send me an e-mail to arrange a meeting. I encourage quick questions by electronic mail. With longer questions or many questions, please come to see me. Don’t wait until the day before an exam!

Grade: The goal of this class is to teach you the basic principles of evolution and to give you an appreciation for the science. It is important to me that you learn the material. I hate to assign grades but they are required. Therefore I am trying an experiment this semester to try to lessen the pressure on the midterm and enhance your learning experience. Each week I will give you a Study Guide on Friday and ask you one question from that study guide as a quiz at the end of class on the following Thursday. I’ll grade it and return it to you by the Thursday after the quiz. Hopefully these quizzes will serve to prepare you for the first midterm and to ensure that your grade is not based on your performance during just two days of the semester.

EEB 245:  There will be a series of ten quizzes (as described above) and two one-hour exams covering each half of the course (listed on the syllabus) and a comprehensive one-hour synthetic final exam. The second one-hour exam will be given in the same two-hour time block as the synthetic final. The quizzes will count 15% of your total grade, the first exam 35% and the second hour exam plus the final will count 25% each.

EEB 245W:  If you are registered for EEB 245W, 75% of the final course grade will be determined by your lecture exams (as above) and 25% by your term paper. As required by University regulations, an F in the W part of the course will result in an F for the entire course. At least two drafts of your writing assignment must be successfully completed to pass the course. A detailed set of instructions will be provided and W students will be assigned a W instructor during the first week of class.

http://www.sinauer.com/detail.php?id=2238#tions
The syllabus always evolves. I will periodically send updated versions which track our true progress and introduce late breaking topics.

**Lecture 1)** Tu. Aug 31st. Tuesday. Introduction to the class. The uses of evolutionary biology. What is evolutionary biology? Pages 1-3. (And start reading ahead with the rest of chapter 1).


Read Ch 23, Ch 1


Read Ch1

**Lecture 4)** Th. Sep 9th Systematics: definition and history. Problems in constructing relationships: polymorphisms and homoplasy.

Read Chapters 2 and 3

[First quiz]


Read Chapters 2 and 3

**Lecture 6)** Th. Sep 16. Reconstructing evolutionary trees from morphological data; Reconstructing evolutionary trees from molecular data.

Read Chapters 2 & 3

[2nd quiz]

**Lecture 7)** Tu. Sep 21st. The tempo of molecular evolution; is there a molecular clock? Is the clock perfect? What are the assumptions of the molecular clock? A review of the tree of life and the major innovations in animal evolution.

Read Chapter 2


Read Chapters 21 & 22

[3rd quiz]
Lecture 9) Tu. Sep 28th  Evolutionary novelties (continued) Homeobox genes, Master control genes. Flies with eyes on their wings. ontogeny and phylogeny, Allometry.

Read Chapters 21 & 22


Read Chapters 4 and 5 (plus 168-171 and Box 7A)

[4th quiz]

Lecture 11) Tu. Oct. 5th  The cambrian explosion (or was it?). The origin of vertebrates and the invasion of land. Major innovations in the evolution of animals Ordovician (the age of jawless vertebrates), Silurian (first life on land), Devonian (the age of fishes)

Read Chapters 4 and 5 (plus 168-171 and Box 7A)

Lecture 12) Th. Oct 7th  Carboniferous (Dragonflies w/ 2 ft. wing span, clubmoss forests; Permian. The origin of mammals. The Permo-Triassic boundary mass extinction. Mesozoic: The age of reptiles. Pangea breaks up followed by Laurasia and Gondwanaland.

Read Chapters 4 and 5 (plus 168-171 and Box 7A)

[5th quiz]


Read Chapters 4 and 5 (plus 168-171 and Box 7A)


Read Chapters 4 and 5 (plus 168-171 and Box 7A)

[Quiz break- no quiz]


Read Chapters 4 and 5 (plus 168-171 and Box 7A)

Lecture 16) Th. Oct 21st.  Biogeography and Biodiversity
Chapter 6

[6th Quiz on the last two weeks- oops ran out of time- quiz given with midterm]

**Midterm. Tu. Oct 26th (quiz 6 & 7)**


Read Ch 9 (to 241); Review chapter 8 (basic genetics) on your own.

[No quiz]


Read Ch 9 remainder

**Lecture 19)** Th. Nov. 4th - Inbreeding continued; Genetic drift, consequences for conservation biology, effective population size

Read Ch 10

[8th Quiz]

**Lecture 20)** Tu. Nov 9th - Founder events. Ch 10, 11 & 12

**Lecture 21)** Th. Nov. 11th – Gene flow models; gene flow studies; northern purity/southern richness. Introduction to selection, directional selection and the environment. Ch 11 & 12

[9th Quiz]


Ch 12


[Quiz Break- no quiz]
Thanksgiving Recess. Tuesday Nov. 23rd and Thursday Nov. 25th

**Lecture 24** Tu. Nov. 30th. Cystic fibrosis & typhoid fever, Genetic load. Wrap up and review of Natural Selection & the maintenance of variation in natural populations, neutralist-selectionist debate, variation due to the environment, phenotypic plasticity, common gardens, Introduction to geographic variation

Ch 17


Chps 17 &18

[Quiz 10 on material from study guide 10 (lectures 21, 22, 23) & not including material after the break]

**Lecture 26** Tu Dec. 7th - Species concepts: morphological & phenetic, biological, phylogenetic, cohesion, practical considerations: large biodiversity studies versus detailed studies of specific genera. genetic variability, geographic variation. Speciation Mechanisms: allopatric, peripheral isolates, founder event speciation, parapatric, sympatric; host races.

Ch 18

Class evaluations


Ch 15 (373-377).

[11th and final Quiz on Lectures 24, 25, 26]

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Second lecture exam and Final exam will both be given during finals week in the regularly scheduled 2-hour period.

Thursday December 16th 10:30-12:30, Braun 124. (As listed on the preliminary final exam schedule on the Registrar’s website: http://www.registrar.uconn.edu/preliminary_fall.htm

The registrar’s office asked faculty to append this note:

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Final exam week for Fall 2010 takes place from Monday, December 13th through Saturday, December 18th. Students are required to be available for their exam during the stated time. If you have a conflict with this time you must visit the Office of Student Services and Advocacy to discuss the possibility of rescheduling this exam. Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the exam schedule and over-sleeping are not viable excuses for missing a final exam. If you think that your situation warrants permission to reschedule, please contact the Office of Student Services and Advocacy with any questions. Thank you in advance for your cooperation.

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