Evolution and Diversity of Life (Biology 2010)

Syllabus for Spring, 2016

Overview: Organisms are the result of their evolutionary history. This course teaches that history and how it is investigated. We trace the evolution of reproductive, metabolic, and morphological diversity from the origin of life through the major lineages of extant organisms. The environmental and biological processes behind major milestones in evolution are discussed along with their basis in evidence and methodology. The diversity of major groups is explored in their evolutionary context.

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Office hours by appointment

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Office hours by appointment

Lectures: M, W, F, 11:50 AM – 12:40 PM, ASB 220

Textbook/ Readings:

Readings:
1. Recommended: Online "eBook" consisting of chapters excerpted from Brooker, Widmaier, Graham, Stiling **Biology** 3rd edition. To purchase (ca. $20), go to http://create.mcgraw-hill.com/shop/ and search for the title "Bohs" or the ISBN: 9781121734371. Add the book to your cart and pay using a credit card. There are a limited number of (more expensive) hardcopy versions at the Bookstore.
2. Optional: Andrew Knoll, "**Life on a Young Planet**" (available at the U. bookstore and on 2 hour reserve in Marriott Library).
3. Journal articles as announced. These will be posted on the Canvas course site.

Discussion Sections: We strongly recommend that you attend a discussion section each week. You do not have to attend the section for which you registered. Choose from the alternatives below to suit your schedule. These sessions, which are led by the teaching assistants (TAs), allow you to ask questions regarding the lectures or assigned readings. You may attend more than one discussion if you prefer.

Discussion times and places are as follows:

M	9:40—10:30 AM	Jay	PAB 103
T	10:45—11:35 AM	Jay	AEB 350
W	12:55—1:45 PM	Rishi	JTB 320
Th	10:45—11:35 AM	Katie	AEB 350
Th	2:00—2:50 PM	Amanda	JTB 130

There will be no Discussion sections the first week of class.
During exam week there will be an additional review session.

Attendance and lecture notes: You are expected to attend all lectures. You are responsible for taking your own notes during lecture. If unavoidable circumstances prevent you from attending a lecture, obtain lecture notes from someone else in the class. Lecture notes will not be provided by professors or teaching assistants.

Online access to course materials: The syllabus, handouts, study questions, homeworks, keys, powerpoints, and other course related items will be posted electronically at the U's Canvas site. Sign on to the Campus Information Services (CIS) page with your username and password. You should be able to

access the Biology 2010 materials under “My classes.” Course materials can be found under “Files” on the Biology 2010 page.

Study questions and reading assignments are posted at the beginning of each week on the Canvas site (under "Files"). Study questions are not graded, and are often gone over in the weekly Discussion sections. Reading assignments provide broader context that may help you better understand the lecture material.

Grading: The final grade is based on a total of 500 points. There are four exams of 100 points each. There are four homework assignments of 25 points each. No grades are dropped. There are no extra credit exercises. Letter grades are assigned at the end of the class. The point breakdown will be no *more* strict than the following: 90-100% A/A-, 80-90% B+/B/B-, 70-80% C+/C/C-, 60-70% D+/D/D-, <60% E. In other words, if you get 85% of the total points, you are guaranteed of a grade of B- or above.

Exams will be based on lecture material. The best study guides for the exams are your own lecture and discussion notes. Review session(s) will be given out of class time for each exam.

Exams will be graded as quickly as possible and returned in class. Keys will be posted on the website. *There will be no makeup exams unless permission has been obtained before the exam from the instructor.* Permission for makeup exams is usually granted only in the case of emergencies such as illness or accidents.

The homework assignments are take-home exercises. You may discuss the exercises with other students but your written answers must be your own work. Late exercises will be subject to point deduction, and their safe handling cannot be guaranteed. No homework will be accepted by email; it must be turned in in person. Likewise, we will not send any assignments or materials to you via email. They must be picked up in person or downloaded from the course website.

Questions regarding grading should be submitted *in writing* to a Teaching Assistant *within one week* of the day on which assignments are returned. Please be detailed and explicit with regard to exactly what mistake was made in the grading of your exam.

Course Drop Policy: The drop and withdrawal policy is the same as the University of Utah policy described in the Class Schedule. Friday, January 22 is the last day to drop with no tuition and no notation on the transcript. Friday, March 4 is the last day students can withdraw, but tuition will be assessed. Contact the registrar or academic calendar for more information.

Evolution and Diversity Lab, Biology 2015: A separate lab course, Biol 2015, runs concurrently with Biol 2010. The topics follow the order of Biol 2010, but give you a chance to experience examples of the organisms that we cover in class. This course complements Biol 2010 and is highly recommended but not required.

Americans with Disabilities Act (ADA): In accordance with University policy with respect to ADA matters and students with other identifiable disabilities, we will provide additional examination time as needed and appropriate. Students needing this service should identify themselves to the course instructor at least one week in advance of the first examination. In addition you must provide a written statement of how we can assist you in completing course requirements. Students requiring additional time with teaching assistants are encouraged to attend as many discussion sections as needed and also to arrange to meet with the teaching assistants or the faculty during their office hours.

Lecture Schedule

DATE	TOPIC	PROFESSOR
Jan 11 M	Course intro. Scientific names and classification.	Bohs
Jan 13 W	Phylogenies.	Bohs
Jan 15 F	The tree of life.	Bohs
Jan 18 M	Martin Luther King, Jr. Day	No class
Jan 20 W	Origin of life I.	Bohs
Jan 22 F	Origin of life II.	Bohs

Jan 25 M	Prokaryotic lineages. **Homework 1 assigned**	Bohs
Jan 27 W	Prokaryotic metabolism.	Bohs
Jan 29 F	Evolution of eukaryotes. **Homework 1 due**	Bohs
Feb 1 M	Protozoans: heterotrophic protists.	Bohs
Feb 3 W	Protist diversity.	Bohs
Feb 5 F	**EXAM 1**	Bohs
Feb 8 M	Origin of the algae.	Bohs
Feb 10 W	Algal diversity and reproduction.	Bohs
Feb 12 F	Evolution of land plants.	Bohs
Feb 15 M	President's Day	No class
Feb 17 W	Bryophytes: non-vascular plants.	Bohs
Feb 19 F	Seedless vascular plants. **Homework 2 assigned**	Bohs
Feb 22 M	Evolution of seed plants.	Bohs
Feb 24 W	Gymnosperm life cycle. **Homework 2 due**	Bohs
Feb 26 F	Gymnosperm diversity; angiosperm life cycle.	Bohs
Feb 29 M	Angiosperm origin and diversity.	Bohs
Mar 2 W	**EXAM 2**	Bohs
Mar 4 F	Fungi I. What is a fungus? Evolution.	Goller
Mar 7 M	Fungi II. Classification, Life Cycle.	Goller
Mar 9 W	Fungi III. Major Phyla.	Goller
Mar 11 F	Fungi IV. Diversity.	Goller
Mar 14-20	Spring Break	No class
Mar 21 M	Animal Origins. **Homework 3 assigned**	Goller
Mar 23 W	The "Cambrian Explosion."	Goller
Mar 25 F	Body Plans. Basal phyla. **Homework 3 due**	Goller
Mar 28 M	Porifera, Ctenophora, Cnidaria.	Goller
Mar 30 W	Placozoa, Acoela.	Goller
Apr 1 F	Lophotrochozoa I. Platyhelminthes. Evolution of muscle tissue.	Goller
Apr 4 M	**EXAM 3**	Goller
Apr 6 W	Lophotrochozoa II. Molluscs.	Goller
Apr 8 F	Lophotrochozoa III. Annelida.	Goller
Apr 11 M	Ecdysozoa I. Nematodes.	Goller

Apr 13 W	Ecdysozoa II. Arthropoda.	Goller
Apr 15 F	Ecdysozoa III. Arthropoda. Evolution of the nervous system.	Goller
Apr 18 M	Deuterostomes I. Echinoderms – Urochordates. Mutualism with photosynthetic organisms. **Homework 4 assigned**	Goller
Apr 20 W	Deuterostomes II. Vertebrates.	Goller
Apr 22 F	Deuterostomes III. Tetrapods. **Homework 4 due**	Goller
Apr 25 M	Animals – Change over evolutionary time.	Goller
May 3 T	**EXAM 4: 10:30 AM—12:30 PM. ASB 220**	Goller