

BILD 3
ORGANISMIC AND EVOLUTIONARY BIOLOGY
Fall semester, 2011

COURSE OUTLINE

Dr. Eben Goodale

Muir Biology 1165

(office inside lab)

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Office Hours: M, W 1:30-2:30

**email correspondence encouraged,
please put BILD 3 in the subject line**

This course covers one of the most important theories in science – the theory of evolution through natural selection – and one of the most important issues of our times – ecology and our present and future environmental challenges. We start by investigating Charles Darwin’s theory of natural selection, its impacts on how we think about life, and its applications to how we live life. The middle section of the class leads us through a brief history of life on earth, from how life may have started, to a history of our own species. The last section of the course focuses on ecology, covering many levels of organization from individuals, populations, species, communities, ecosystems to the globe itself. We will also study how mankind is affecting our world and how we can address such problems.

LECTURES: Monday, Wednesday and Friday, Peterson 110

READINGS:

Our class text is “Biology” (Ninth Edition), by Campbell and Reece, Benjamin-Cummings, 2011. We will cover material from units Four, Five, Seven (Chapt. 51) and Eight of the text.

If you have the 8th edition from a previous course, you can continue to use it, but find a study partner who has a new textbook, as I may use questions from the new textbook in exams. If there is material that I refer to in class that is in the 9th edition and not in the 8th edition, I will tell you.

1. Sept 23 (Fri)	Our aims	Chapter
2. Sept 26 (Mon)	Beginning Darwin’s journey: evolution as a pattern of change	22
3. Sept 28 (Wed)	Following Darwin’s journey: natural selection as a mechanism of evolution	23
4. Sept 30 (Fri)	Evolution: religion, politics, and questions	
5. Oct 3 (Mon)	What Darwin didn’t know: genetics and natural selection	
6. Oct 5 (Wed)	Splits on the tree: speciation.	24
7. Oct 7 (Fri)	From speciation to tree-thinking.	26

8. Oct 10 (Mon)	Phylogeny and systematics.	
9. Oct 12 (Wed)	Molecular evolution and “Evo-devo”	
10. Oct 14 (Fri)	Midterm I	
11. Oct 17 (Mon)	An overview of the history of life	25
12. Oct 19 (Wed)	Early life and bacteria	27, 28
13. Oct 21 (Fri)	Conquering the land: a history of the plants	29, 30
14. Oct 24 (Mon)	A different strategy: fungi and the early animals	31, 32, 33
15. Oct 26 (Wed)	Enter the backbone	34
16. Oct 28 (Fri)	The evolution of us	
17. Oct 31 (Mon)	Intro to behavior: nature vs. nurture	51
19. Nov 2 (Wed)	Behavior as an adaptation	
19. Nov 4 (Fri)	Evolutionary psychology: behavior applied to humans	
20. Nov 7 (Mon)	Midterm II	
21. Nov 9 (Wed)	Life at different scales: an introduction to ecology	52
-- Nov 11 (Fri)	VETERAN’S DAY	53
22. Nov 14 (Mon)	The ecology of populations	
23. Nov 16 (Wed)	Populations II: more complex models and other species	54
24. Nov 18 (Fri)	What is a community?	
25. Nov 21 (Mon)	Communities II: explaining biodiversity	55
26. Nov 23 (Wed)	The ecosystem as a level of organization	
-- Nov 25 (Fri)	THANKSGIVING	
27. Nov 27 (Mon)	Ecosystems: nutrient cycles (and what we’re doing to them)	56
28. Nov 30 (Wed)	Our environmental health: problems and challenges	
29. Dec 2 (Fri)	Our environmental health: mitigation and restoration	
30. Dec 9 (Fri)	Final: 3:00 – 6:00 PM, Place: TBA	

GRADES:

Your grade will be composed of the following:

- 22.5% Midterm I
- 27.5% Midterm II
- 35% Final
- 10% Quizzes
- 5% Clicker points

As my aim is for you to learn the material, I will grade you based on what you know: the grade you get on the test will be your grade, and there will not be a curve. If, however, the class median falls below an 80%, I will curve the class up to a median of 80%.

SECTIONS:

Sections are mandatory and allow you to learn the material and in a smaller class setting and through some hands-on activities. Sections will have both quizzes and activities that will count towards your grade. Our TAs have been selected because of their performance in BILD 3 and/or their interest in ecology and evolution, and they will be an important part of your learning in the class.

Section registration will start the week of Sept 26 and details will be announced in class. To get in a section, go to <https://sections.ucsd.edu/>.

Section policy: If you know a week ahead of time that you will miss a section, you may go to another section, as long as you have contacted your section leader and they have approved.

SECTION TIMETABLE:

		TA Name	E-mail	Room
1	M 11:00-11:50	Jeffrey Kim	gjk004@ucsd.edu	WLH 2208
2	M 12:00-12:50	Natalie Seto	nseto@ucsd.edu	WLH 2208
3	M 1:00-1:50	Shi Chen	syc016@ucsd.edu	WLH 2208
4	W 12:00 – 12:50	Spencer Huey	sdhuey@ucsd.edu	WLH 2208
5	W 1:00-1:50	Melissa Wette	mwette@ucsd.edu	WLH 2208
6	W 2:00-2:50	Christina Van	chvan@ucsd.edu	WLH 2208
7	F 12:00-12:50	Srina Sakhamuru	ssakhamu@ucsd.edu	WLH 2208
8	F 1:00-1:50	Faiza Morado	fmorado@ucsd.edu	WLH 2208

SECTION schedule

Week starting	Section / No Section	Reason
Sept 20	No Section	1 st class only
Sept 26	No Section	sectioning
1. Oct 3	Section	
2. Oct 10	Section	
3. Oct 17	Section	
4. Oct 24	Section	
5. Oct 31	Section	
Nov 7	No Section	Midterm II (Mon, 7 th) Veteran’s day (Fri, 11 th)
6. Nov 14	Section	
Nov 21	No Section	Thanksgiving
7. Nov 28	Section	

CLICKERS:

Clickers: We will be using iclickers in this course. They are white with grey buttons. Other types of clickers will not work. If you are buying a clicker for the first time, buy the iclicker 2. However, if you have an iclicker 1 (the original one), it will still work for class. During lecture, I will ask questions that you will respond to with your clickers. The point of the system is to encourage more interaction between students and between the students and the instructor, despite the fact that there are many of us in this lecture hall. The clickers will give you feedback on your comprehension and will give me feedback on my teaching.

We will go over the use of clickers, Monday Sept 26. Please bring your clickers to class that day and every subsequent lecture. They are not needed during exams, nor will you use your clicker for homework or discussion section.

Every student in this course must have their own clicker. For the first two weeks of class, we will be practicing with the clickers - the points will not count. This is a great opportunity to make sure you know how to use your clicker and your clicker is working properly. I will post the points on WebCT so you can check. If you have any problems with your clicker during these 1st two weeks, I will do whatever I can to help you. The clicker technology is not perfect— there are occasionally technical difficulties. So use these first two weeks to make your clicker work for you.

Starting October 12 you will receive points for answering clicker questions in lecture. I will assume your clickers are working properly by this time. I also assume that you will only operate one clicker, for yourself, during lecture, and the TAs and I will be watching to check that everyone is following this policy.

PREREQUISITES: The recommended prerequisite for the course is Biology 1 or a good high school course in biology. **The course assumes that you know Mendelian genetics, mitosis and meiosis, and the basics of molecular biology — the transfer of genetic information from DNA to RNA and then to proteins.** If you don't have a command of these topics, you will be at a disadvantage unless you do some extra reading in Units 1 and 3 of the text.

WEB SITE: Enrolled and waitlisted students should have access to the course website at <https://ted.ucsd.edu/>

REGRADES: If a grading error has been made on your exam, you may submit a **regrade petition** to the professor within one week of return of the exam. Before considering a regrade, you must read the answer sheet, as we grade according to that. If you feel that your answer was not graded according to the answer sheet, you may write a regrade petition. *A regrade petition must clearly and concisely state the reason(s) why you think your answer is deserving of additional credit. Regrade requests will not be processed without a written petition.* **No regrades will be given for exams written in pencil or non-permanent ink.** Students who submit exams for regrading do so with the knowledge that we may (1) regrade the entire exam (and your score could go up or down) and (2) compare the submitted regrade to photocopies of the original exams.

MISSED EXAMS: *There are no make-up exams and missed exams will normally be considered zeroes.* If you know in advance that you cannot be present for an exam, you must contact the professor at least one week before the exam and make arrangements. If you do not inform the professor and miss a midterm or final exam, then you will be required to provide official documentation of an unavoidable emergency (e.g., serious illness, etc.) Without such documentation, you will receive a zero for that exam. For a missed exam with valid documentation (e.g., from a doctor or a funeral director), the

professor will determine the method of makeup.

CHEATING: Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity (<http://www.senate.ucsd.edu/manual/Appendices/app2.htm>). Cheating will not be tolerated, and we will fail any student caught engaging in academic dishonesty. All exams will be closed book and closed-notes; all personal materials must be stowed under your seat while exams are in progress. Because all exams are required for satisfactory completion of this course, any student caught cheating on an exam will receive a failing grade for the course. He or she may also be suspended from UCSD.

HOW TO DO WELL IN CLASS:

- 1) **Do your readings before class.** That way you'll be prepared. Understand that I expect you to read and comprehend all the assigned textbook material, even if I don't explicitly go over all of the material during lecture. Clicker questions will reinforce reading. Also, the questions in the back of each chapter are a good way to study.
- 2) **Take notes in class.** I suggest that you take notes the old-fashioned way, by writing them out long hand. This requires you to process the information in your head while in lecture and is worthwhile. For those who want it, abbreviated notes will be available before lecture on WebCT (minus clicker points and other questions I want to ask in class).
- 3) **Go to lecture.** You are rewarded by the clicker points, and as importantly, there will be topics and examples that I cover that the book does not. Before tests, I will distribute an outline of the material covered on the test, making sure to point out what material was from lecture.
- 4) **Go to section.** You are rewarded by the quiz points. Also, this is your opportunity to go over material that was difficult for you and for you to ask questions.