

ORGANISMIC & EVOLUTIONARY BIOLOGY Summer 2013
BILD 3 (#780087)
Professor David Woodruff

Tentative Schedule 7/31/13

Date	Lecture Topic TuTh in WLH 2005: 8:00 - 10.50 am	Chapters in Campbell 9 th edn.
Aug 6:	8 Introduction	1, 12, 13, 22
	9 Darwin	
	10 Heredity	12-15
Aug 8:	8 Process of microevolution	14,15, 22
	9 Evolution in action – natural selection	23
	10 Species and speciation	24
Aug 13:	8 Adaptive radiations, macroevolution	25, 26
	9 Origins, tree of life, microorganisms	27, 28
	10 Flowering plants	29, 30, 31
Aug 15:	8 Parasites, plagues & people	28, 31
	9 Marine biology	32, 33
	10 Insects	33 (684–692)
Aug 20:	8 Midterm exam 1 (30%)	
	9	
	10 Vertebrates [sharks, mammals]	34
Aug 22:	8 Population growth	52, 53
	9 Population regulation	53
	10 Competition	53, 54
Aug 27:	8 Predator-prey interactions/Mutualism	53, 54
	9 Ecological energetics	54, 55
	10 Biogeochemical cycles	52, 55
Aug 29:	8 Community ecology [biomes, tropical rainforest]	25, 52 (1152–62)
	9 Physical biogeography and global change ecology	56 (1254-59)
	10 Species-level biogeography [island theory]	54, 56
Sept 3:	8 Conservation biology	56
	9 Simple behaviors	50 (senses), 51
	10 Complex behaviors	51
Sept 5:	8 Sociobiology	51
	9 Human evolution	34 (728–733)
	10 Human ecology - Future of life	53 (1187–91), 56
Sept 7	Final exam (70%) Saturday 8:00am – 11:00am	Comprehensive

SECTION SCHEDULE:

Week of August 6	review on heredity & basic genetics
	review of lectures on evolution
Week of August 13	review of lectures on diversity
	review for first midterm exam
Week of August 20	review of population ecology
	Review of midterm exam
Week of August 27	review of community ecology
	review of biogeography
Week of September 3	review of conservation, animal behavior, human evolution
	review for final exam on September 7

ORGANISMIC AND EVOLUTIONARY BIOLOGY Summer 2013

BILD 3 = Bio 3

INSTRUCTOR

Professor **David Woodruff**,

Ecology, Behavior and Evolutionary Biology Section (EBE), Division of Biological Sciences

Office: Muir Biology room 2258

Office hours: Fridays 1.30-2.30 p.m., or by appointment (see instructor after class or send him an email to schedule).

Email address: dwoodruff@ucsd.edu (**please put "Bio 3" in the subject line and whenever possible use your @ucsd.edu address**)

VENUES

Lectures: **Warren Lecture Hall (WLH) 2005, TuTh 8-11a**

Sections: Various locations. See *Sections* (below). Sign up instructions below

COURSE OBJECTIVES: This course deals with the living world at the level of whole organisms, populations, communities, biomes, ecosystems and the biosphere. It is designed to introduce you to the fields of evolution, systematics, ecology, environmental science, behavior and conservation biology. The major focus of the course will be on evolution, since an understanding of the evolutionary process enables us to grasp why there are so many different kinds of living things, how they interact with each other to produce complex ecosystems and make the planet habitable, the ways in which these interactions may lead to the evolution of complex behaviors, how evolution has often brought about large changes in body plan, and how species (including ourselves) are likely to continue to evolve. Such knowledge is essential for understanding biology in general, and provides the tools for our stewardship of the planet's biota and the sustainability of the ecological services we take for granted. It also provides a basis for understanding our own species and our impact on global climates, mass species extinctions, planetary-level environmental alterations, pest outbreaks and emergent diseases.

PREREQUISITES: Officially this course has no prerequisites. However, most students have already taken BILD 1 or the equivalent, and have studied mitosis, meiosis and Mendelian genetics. I strongly recommend that all students review basic heredity *before the start of classes*. Specific recommended readings in Campbell (Chapters 12-15) were spelled out in an email to all enrolled students. A general understanding of the material in Chapters 14-15 will be assumed.

This message has confused a few students in the past so I'll try re-stating it: Unlike BILD1 and BILD2, there are no prerequisites in BILD3. However, many enrolled students have already taken BILD1 or the equivalent and have studied heredity in detail. These students have an advantage as BILD3 begins with a discussion of evolutionary processes that build upon basic heredity. To give other students a fair chance I strongly recommend that all students review this material before the first lecture. Such review can be put off until after the start of classes but this is not a good idea given the very large amount of new material to be examined in the first midterm on August 20. Historically, I find that students who review the material as suggested are not at a disadvantage in this first exam.

This material is not difficult but will take you 1-2 full days to learn if you are new to it. The relevant chapters are 12-13 (background material on cell division, mitosis, meiosis and sexual life cycles) and, most importantly, chapter 14 and 15 (on Mendelian patterns and the chromosomal basis of inheritance). Your understanding of chapters 14-15 will enable you to quickly grasp the fundamentals of population genetics and evolution that will be discussed in this course.

Should I take BILD 1 before BILD 3.

Traditionally many students took BILD 3 first, or concurrently with BILD1. It really does not matter.

However, the many students who have already taken BILD 1 or equivalent are at an initial advantage and my pre-course review suggestion is intended to put all students on an equal footing at the start of the quarter. EBE majors are encouraged to take BILD 3 as Freshman or Sophomores, whether or not they have completed BILD 1.

TEXTBOOK: Campbell & Reese 2011. *Biology*. Benjamin Cummings/Pearson, San Francisco. 9th edition.

ALTERNATE TEXTBOOK: Beginning in Fall 2013 all Bio1+2+3 classes will be using a new book: *Campbell Biology in Focus* by Urry and six others. It has 900 pages rather than the 1260 pages in the 9th edition.

Campbell Biology in Focus is a condensed version of the 9th edition brought up to date. Multiple examples are typically replaced by a single example and the pictures tend to be smaller. But aside from that the two texts are often identical. All the important examinable material is well presented in both books.

If you have already started the Bio1+2+3 series at UCSD and have the 9th edition stay with it. The 9th edition will also be available as a used book. Older editions are not recommended.

If you are just beginning this series at UCSD then it would be better to invest in *Biology in Focus* from the start.

If you are taking Bio 3 only at UCSD then it won't matter which book you use. Again, the important parts of the two book's contents are very similar.

We will cover material from Chapters 1, 12-15, 22-34, 50-56 in both the 9th and in *Biology in Focus*. The publisher offers various supplemental materials including a CD, a web site called *MasteringBiology*, and a book of exercises. Students just beginning the whole series Bio1+2+3 may find them useful, but they are *not required* for Bio3. There are a few copies of Campbell on reserve in the Geisel Library (in the Science section of the library) but there is no guarantee of their availability when you really need one; there are ~164 students enrolled in the course.

CLICKERS: not used in this class.

DROPPING: if you drop the class, please do so formally so we don't have to give you an F grade.

WEB SITE: Everything related to the class is kept on the TED: ted.ucsd.edu site.

Lecture outlines will be posted on the site as pdf files. Most text-rich slides for each lecture will be available by 10 p.m. the night before the lecture. These .pdf format files with 6 slides per page will be in color but can be printed in black and white. They can be used on your laptop and annotated during the lecture or they may be downloaded and printed out, and brought to class for note taking with a pen or pencil. The pdf will give you a copy of most of the text-rich slides put up in class [things you must know] and some but not all of the illustrative slides. The remainder of the slides [pictures] and the occasional film clips are not available on TED as they are copyrighted, in the book, or of secondary importance. If you plan to print out the lecture outlines you should know that there will be about 250 pages and will fill a 1.5 – 2.0 inch 3-ring binder.

Announcements of exam room changes and many other important matters will be posted on the site. Check the site daily!

Online discussion board moderated by the TAs. You can ask the TAs questions, and discuss interesting matters that come up in class.

Grades for the midterm and final exam will all be posted on the website under "My Grades" long before the Registrar releases the official ones.

If you have problems using TED go to the ACS or your TA for advice. The problem is often that you have not verified your browser compatibility, you have blocked pop-ups, or you are using out-of-date software.

MIDTERM EXAM:

There will be one midterm, held during the lecture time on Tuesday August 20 at 8:00 am.

Make-up exams are not available. Exams are offered at the scheduled times only. Advise your coaches, teammates, traveling companions, significant others, and families accordingly. The exam will consist of multiple choice, short answer, and simple quantitative exercises designed to test your recall and ability to synthesize information presented in the lectures and assigned readings. The midterm exam will be based on material up to the lecture preceding the exam unless announced otherwise in class. An extra room in addition to the lecture hall may be provided to relieve crowding; watch for announcements in class and on the web site. There will be a help session before the midterm when TAs can help you with your

questions but there will not be a general all 165 student review session where the TAs go over everything that they think is important. You are encouraged to seek assistance from your TA as soon as you discover you need some help. Calculators will not be needed or allowed in any exams.

FINAL EXAM: The comprehensive 3-hour final exam (covering the whole course) is scheduled for Saturday September 7 (8:00 a.m. – 11:00 a.m.). Early exams are not available. Sorry! Watch for the announcement in class and on the web site about the locations. The final exam will be cumulative with somewhat greater emphasis on previously untested material and more questions requiring written answers.

MISSED EXAMS: There are no make-up exams so *unexcused* absences from scheduled exams will be recorded as zeroes. If you know in advance that you cannot be present for an exam, you must contact Dr. Woodruff at least one week before the exam. Unusual and serious problems that affect your inability to take a scheduled exam (e.g., death or serious illness in the family or personal tragedy) must also be communicated to the professor directly or through your TA or college Dean. The instructor can only provide special considerations for students with documented excuses involving circumstances *outside of their control*. It is very difficult to be considerate after the fact – make sure we know of your circumstances before, rather than after, scheduled exams.

MIDTERM RE-GRADES: You should review your paper with your TA during your assigned Section the week after the tests. The TA will go over the answers with you at that time. It is your responsibility to check your exam for clerical errors in grading. With a ~1% error rate we expect 2 clerical errors. If you think a grading error has been made, you should submit a re-grade request to the TA at the end of the Section meeting. You have one week only to appeal the grading; the time and date of closing down the appeal process will be announced in class. Simply write “please re-grade Q #” or “arithmetic error on p. #” on the cover of your paper. Do not write anything else. No re-grades are possible for exams written in pencil. Students who submit exams for re-grading should understand that we may (1) re-grade the entire exam, and (2) compare the submitted paper to a scanned copy of the original exam. We always reserve the right to correct grading errors we discover in the re-grade process and scores can go up or *down* as a result of a re-grade request.

COURSE GRADES: There will be one midterm 50-minute exam given during regularly scheduled lecture times on August 20 and a final exam at the scheduled time on September 7. These exams are worth 30%, and 70% of the course grade, respectively. All your scores are kept on TED in the folder labeled “My Grades”. Final course Letter grades will be determined by the instructor based on his assessment of the difficulty of the exams and the effort put in by the class as a whole. Historically, in this class, the percentages of students receiving each letter grade were approximately: A 20%, B 30%, C 35%. [In 2011, they were 24%, 33% and 26% respectively.] The mean score will probably be a C and the median score will be a C+. Yes, we use +/- grades. The scores on your tests are converted to their values out of 30% or 70% and are summed to give your course total – there is no transformation or curving of the *scores*. You will see how you are doing relative to other students by studying the statistics released on TED in My Grades. Students earning less than 50% can expect to receive C-, D or F-grades unless there are mitigating circumstances. We will try to keep the course at the same level of difficulty as the other Sections of BILD 3 being taught. Please note: the university will not allow us to change a letter grade after they are turned in except in cases of demonstrable clerical or grader error.

CHEATING: DON'T. Students found to have violated the Policy on Integrity of Scholarship in any part of the course will receive an F-grade in the entire course. Their identity and the evidence will be passed to the relevant university staff and the Academic Integrity Review Board for further action. Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship (go to TritonLink: Academics: Academic success: Academic integrity). Cheating and attempted cheating will not be tolerated and we will fail any student caught engaging in academic dishonesty. All exams are closed book and closed-notes; all personal materials including calculators and **cell phones** must be stowed away while exams are in progress.

HELP: the outstanding Teaching Assistants are here to help you. Seek help in a timely way and we will try to provide it. Warning: it is really difficult to get help the night before the exams, please plan ahead.

OSD students: Give Biology Undergraduate Student and Instructional Services (SE corner of ground floor of Pacific Hall) your Authorization for Testing Accommodation form and make sure the Instructor knows your circumstances at least one week before any exam.

SCHOLAR/ATHLETES: official university team members traveling to scheduled away-events that conflict with the midterm exam should provide the instructor with documentation [typically a letter from your coach] at least 10 days before the midterm and request some special accommodation. If you miss a lecture or Section meeting be sure that you have a friend brief you on whatever you missed; you should also check with your TA the following week.

PODCASTS: no, the lectures are based on large numbers of slides and the instructor's words will make little sense out of context. If you miss a lecture get a friend's notes and/or seek help from your TA.

TIPS for great grades: Before lecture: review the pdf of the slides, review the assigned chapter (read it fairly quickly and don't make notes). During lecture: take notes on the pdf (electronically or on your hard-copy, insert reminders for all the slides that are not on the pdf [e.g., he showed slides of lots of different types of sharks], put * near things you didn't understand. After lecture: work up the notes with the textbook open, read the chapter more carefully, answer your own Q from the class, identify anything you still don't understand for discussion with your TA. Each week review your notes and compile lists of new technical terms you need to be able to define. Prepare tables and sketches to help you review the vast amount of material *before* exams. Section meetings: attend all Section meetings. Typically, students who attend Sections do one letter grade better on average than those who don't. Some material will be taught in Sections and not during lectures. Go to Section with at least one question for the TA; short emails to your TA or to the TED discussion board may get answers faster than complex multipart questions. Exams: Do not put studying off until the last two days before the tests – there is too much material – it cannot be done. Allow yourself plenty of time to prepare for the exams. This course is conceptually easy but involves a large amount of simple learning (names, definitions and examples). Most exam questions focus on material treated in both lecture (or Section) *and* the textbook. Correct but vague answers never get as many points as precise ones.

COURSE IMPROVEMENT: Your constructive criticisms are welcome. Dr. Woodruff is available immediately after lectures, at his scheduled office hours, and by email almost anytime [put Bio 3 in the subject line and keep your message short, please].

FINAL ADVISORY: The course has a heavy work-load initially [lots of old-fashioned learning] and a lighter load [more thinking about what you have learned] at the end. Please plan accordingly. The material is not difficult but there is a lot of it... We look forward to working with you to make this one of the most interesting courses you take at UCSD.

SECTIONS AND SECTION MEETINGS: Students have the opportunity to meet with a Teaching Assistant in relatively small groups on a twice weekly basis. Regular attendance at Sections is highly recommended.

You must sign up for a Section at <http://sections.ucsd.edu/>. The sign up site should be available to you before the first day of classes and hopefully on August 2 or 3. An email will be sent to all students as soon as the site is available and you should act on this asap as Sections fill up quickly. Sections are filled on a first-come first-served basis.

The section meetings provide for:

1. **Academic review.** Each week the TA will provide an opportunity for review of the previous weeks lectures and readings. This review may take the form of answering your specific and general questions, clarifying something important presented quickly in lectures, expanding on something important described in the textbook, or working through a numerical problem of the type found on the exams. To benefit from these meetings you must prepare by completing both your lecture notes and the assigned reading. There is no need to bring the textbook to the Section meeting.
2. **Advice on studying.** In particular, the TA's may be able to steer you through the enormous amount of descriptive material in the textbook. They will not know what will be on the exams but they are experienced enough to know how to set learning priorities. They meet with the professor before each class and can give you his advice on what's important and what is less likely to be examined.
3. **Self-assessment quizzes.** Short sets of illustrative questions may be presented during some section meetings. You will grade these yourself immediately. These exercises should give you a good idea of how you are doing in the course.
4. **Auditing the grading** of your midterm exams. The instructor keeps all exams but encourages you to review the grading of your paper with your TA the week after each midterm exam. Rarely, we discover that a grader "lost" a whole page in tabulating your score and we need your help in fixing such unfortunate accidents.
5. **General course announcements.** We will make numerous announcements in Sections and on the TED website about the course and course-related opportunities. If we offer one or more Workshops to help those of you needing additional assistance on specific topics these meetings will be announced in Sections.
6. A very small chance to influence your final course grade. Your TA has no ability to influence your scores on the exams or your final grade. They do, however, sit in on the final grading conference where your efforts, attitudes, and special circumstances may be considered if there is a judgment call as to whether you earned the top B or the bottom B+, or whether you unfortunately earned your F or deserve a D.
7. **General advice.** The TA's are a lot easier to find than the professor so please direct your questions about other courses, majors, careers, 199s, summer opportunities, study abroad opportunities to them, in the first instance.

Schedule of Section Meetings:

Sign up at: <http://sections.ucsd.edu/>

Sections are filled on a first-come first-served basis. Here are your possible choices; again, act on this asap as Sections fill up quickly.

A01	MW	08:00a - 08:50a	CENTR 218
A02	MW	09:00a - 09:50a	CENTR 218
A03	MW	10:00a - 10:50a	CENTR 218
A04	TuTh	11:00a - 11:50a	WLH 2112 cancelled by Registrar
A05	TuTh	12:00p - 12:50p	WLH 2112
A06	TuTh	1:00p - 1:50p	WLH 2112
A07	MW	5:00p - 5:50p	CENTR 218

Keep a record of which section you signed up for.