BILD 3

Organismic and Evolutionary Biology

Spring 2022
MWF 12 – 12:50 PM
Pepper Canyon Hall

Office hour: 11 am - noon Thurs
Mandeville coffee cart
(Art of Espresso)

Professor: Dr. Kim Cooper
E-Mail: kcooper@ucsd.edu

NOTE: On all emails, **please put BILD 3 in the subject line** to indicate your email is about this course or you may not receive a response. This is simply because I get dozens of emails each day, and I am teaching two courses this quarter. Alternatively, please come talk to me before or after lecture or during my office hour.

Course Description: BILD 3 is an introduction to biology in the context of whole organisms, their evolution, ecology, and behavior. The planet is teeming with a vast diversity of life, and the goal of this course is for you to understand the nature of that diversity, the evolutionary origin of species, mechanisms for the continuing diversification of life, and the ecological relationships between living organisms and their environment. We will also discuss human impacts on global climates, species extinctions, environmental alterations, and the role of conservation in protecting species diversity.

How to excel in this class: 1) Read the recommended pages from Campbell in advance of class and bring a copy of the Handouts, available on Canvas the night before each class. 2) Hand-write notes during class and highlight concepts that seem unclear to you. 3) Download the Concepts and Vocab study guide after the lecture. Go over your notes to answer the questions and define vocabulary. **Work with others to discuss the Concepts and Vocab**. Revisit material with the Podcast, the textbook if needed, and by searching online for related material. 4) Attend your discussion sections, prepared with questions, and attend professor/IA office hours whether you have questions or not. 5) Study together with others. Their knowledge will fill your gaps and vice versa, and studying with another person gives you the opportunity to teach, which reinforces learning.

Grading Policies: My exam policy is structured to *reward growth and to acknowledge challenges* that may arise at any point in the quarter. There will be three non-cumulative exams each worth 100 points. I will replace your lowest exam grade with the average of all three exam scores.

100 Points: Highest exam grade
100 Points: Second highest exam grade
100 Points: Average of the three exam grades
80 Points: Quizzes (Nine 10 pt quizzes beginning Week 2 - drop the lowest)
80 Points: Four worksheets (Each worth 20 pts – to be posted a week before each is due)
18 Points: Section attendance (2 pts **each week**)
Total graded points available = **478**
10 Points: Extra credit points available. Details announced after lecture 12.

My course curve policy is designed to encourage you to study together. The class is not graded on a standard curve. Instead, I take the top 5% of the course, average their cumulative points without extra credit, and make that the 'total possible points' (e.g. 466 instead of 478). I then add extra credit to everyone who earned it and divide the cumulative points by the total possible points. I then make letter grade cutoffs at standard intervals (e.g. 97-100%=A+, 94-96% A, 90-93% A-, etc). **Therefore helping your classmates doesn't hurt you, and <u>everyone can get an A</u>.** Please note that I do all of this in Excel at the end of the course, and Canvas will therefore only accurately present your final course grade just prior to the grade submission deadline.

Pandemic-related policies: *This is a fully in-person course*. That said, the lecture content is podcasted so that you can review material and so that no one feels compelled to come to class if they feel unwell. Discussion section attendance is graded (minimal points) to encourage your participation, because those small groups enable the most 'active learning' in the course. Studies show that active learning interventions are the most successful at narrowing achievement gaps. You may temporarily switch sections twice during the quarter by notifying your IA, the IA of the section you wish to attend, and me by email *prior to the start of either section.*

All quizzes and exams will be held in person, and <u>all requests to make up graded assignments must be submitted by emailing the professor before the due date.</u> The grading scheme drops the lowest quiz grade and replaces the lowest exam grade with the average of all three. My make up policy for exams is as follows. A similar policy applies if you must miss more than one quiz:

1) You must email me *in advance of the exam date* to request a make up. You will not be allowed to make up the exam if you sleep through the scheduled time or forget.
2) We will schedule your make up exam to be held **after** the exam is held in class.
3) Your make up exam will consist of the written exam administered in my office **<u>and</u>** <u>an oral examination of your understanding of the course content.</u>

Cheating: <u>Don't do it</u>. *I have and will continue to report every cheating incident to the Office of Academic Integrity once it comes to my attention.* Students often think they hurt no one but themselves when they cheat. You do hurt yourself, by not preparing yourself for exams (if it is a homework or quiz assessment) and by not preparing your mind and defining your values before transitioning to the work force or professional school. You also hurt your classmates by devaluing the hard work they put into learning when you take a grade you haven't put equivalent effort into earning.

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. **Academic misconduct** is broadly defined as any prohibited and dishonest means to receive course credit, a higher grade, or avoid a lower grade. Studying with others in advance of an assessment and requesting assistance from the instructors to prepare for assessments and to understand the homework assignments is not considered cheating. <u>Giving or receiving answers to any graded assessment by any means (including use of contract cheating sites, such as Chegg and Course Hero) is considered cheating.</u> Those caught cheating will be reported to the Academic Integrity Coordinator, which reports directly to the Dean of the student's college. For the Academic Integrity policy at UCSD, see here: http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2

What will be assessed? All content presented in the lectures is fair game for quizzes and exams, and only content from lectures will be covered. Since the course presents foundational knowledge that will be useful/necessary for upper division biology courses, there will be some degree of 'recall' assessment. I aim, however, to write assessments that also ask you to apply and extend concepts to

new scenarios. It is therefore in your best interest to approach this course with an effort to understand the content conceptually and not to simply memorize lectures.

Textbook: Campbell Biology, is *highly recommended* but not required. You will only be tested on information and concepts covered in lecture. This material also appears in certain chapters of the book, annotated in the syllabus for the 11th Edition, so you may find it helpful to refer to the book for additional information. Credible resources for almost everything I discuss can also be found for free online. The publisher of Campbell Biology also offers a CD, a web site called Mastering Biology, and a book of exercises. These supplemental materials may be useful to you, but they are NOT required. Used copies are available online or at the bookstore, and several copies of the texts are on reserve at Geisel Library. Older versions of Campbell Biology could also be helpful to you, and there is a newer (12th) edition. These editions are similar, but not identical, and will still be a good resource.

Poll Everywhere: We will be using Poll Everywhere to facilitate exchange of information during class in real time. I have used iClickers in the past, which have limited functionality and cost students money. Poll Everywhere is free for you to enroll and gives me the sort of breadth of engagement that we had over Zoom. Please see the first course announcement and your email invitation from Poll Everywhere for registration information.

OSD students: If you need testing accommodation for this class, please work with the Office for Students with Disabilities (OSD). Students requesting accommodations and services due to a disability for this course need to provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD), prior to eligibility for requests. Receipt of AFAs in advance is necessary for appropriate planning for the provision of reasonable accommodations. OSD Academic Liaisons also need to receive current AFAs. For more information, contact the OSD at (858) 534.4382 (V); (858) 534-9709 (TTY); osd@ucsd.edu, or http://osd.ucsd.edu. **You will also need to coordinate scheduling of exams with me. All of these arrangements should be made within the first two weeks of the quarter.**

Enrollment questions: Administrative, advising, or registration questions should be submitted via the Virtual Advising Center (vac.ucsd.edu).

Situations arising: If a serious medical or personal challenge arises during the quarter, the university does allow medical withdrawals. Contact the Biology Student Affairs Advising Services office at 858-534-0557 or go to their website (http://biology.ucsd.edu/undergrad/advising-services.html).

Name	Email	Section(s)	Office hour
Megan Demmel (Graduate IA)	mdemmel@ucsd.edu	A01 M 4-4:50 pm U301 122 A02 M 5-5:50 pm U301 122	M 10-11 am Tata Hall west balcony
Carolina Lopez	cal007@ucsd.edu	A05 F 4-4:50 pm HSS 1128A	Tu 2-3 pm at tables in front of Student Services Center (near Triton statue)
Alyssa Piang	apiang@ucsd.edu	A03 W 11-11:50 am HSS 2150	M 4-5 pm on Zoom https://ucsd.zoom.us/j/4106889467
Bridget Spencer	bcspence@ucsd.edu	A04 F 3-3:50 pm HSS 1128A	F 2-3 pm HSS 1128A
Mingya Yang	m4yang@ucsd.edu	A06 Th 7-7:50 pm CENTR 217A	F 3:30-4:30 on Zoom Meeting ID: 717 593 6044 Password: BILD3

Lecture Schedule
(The following is an estimation, and the timing will adjust as the course proceeds.)

Date	Lecture Topic	Textbook Chapters Campbell 11th Ed. Pages listed below
March		
28	1. Introduction and History of evolutionary thought, Part 1	466-475
30	2. History of evolutionary thought, Part 2	
April		
1	3. Fossil transitions, vestigial structures, and homology	477-482,728-729, 736-737
4	4. Genotype/phenotype relationships	484-487,495-496, 498-499
6	5. Types of Selection	487-491
8	6. Probability and Hardy-Weinberg	498-502
11	7. Hardy-Weinberg and effects of selection and fitness	476, 491-495
13	8. Microevolution, genetic drift, and gene flow	497-508
15	9. Sexual selection and species concepts	509-514
18	10. Species concepts and speciation	509-514
20	**MIDTERM I on Lectures 1-9**	
22	11. Phylogenetic trees	551-562
25	12. Taxonomic groupings	479
27	13. History of life on Earth Part 1	523-540
29	14. History of life of Earth Part 2	
May		
2	15. Organismal diversity I (bacteria, archaea, protists)	571-613
4	16. Organismal diversity II (algae and plants)	616-669
6	17. Organismal diversity III (fungi and most inverts)	671-732
9	18. Organismal diversity IV (deuterostomes to human evolution)	
11	19. Human evolution Part 2 and Intro to Ecology	746-752
13	20. Abiotic factors and biomes	1162-1184
16	**MIDTERM II on Lecture 10 – Human Evolution**	
18	21. Population ecology (life histories)	1188-1193
20	22. Population ecology (growth models)	1194-1209
23	23. Community ecology (interspecies interactions)	1212-1219
25	24. Community ecology (trophic structures)	1220-1232
27	25. Ecosystem ecology (production efficiencies)	1236-1246
30	Memorial Day (no class)	
June		
1	26. Ecosystem ecology (nutrient cycles and climate change)	1246-1250, 1272-1282
3	27. Loss of biodiversity and conservation	1258-1272
8	**Non-comprehensive Final Exam on Lectures 20-27**	