Evolution (BIEB 150) – Fall 2022

Lecture – Tuesdays and Thursdays 6:30p - 7:50p
Location: York Hall 2622

Office Hours – Fridays 2:00p – 3:00p
Location: Muir 2212

Discussions Sections – Monday 11:00a -11:50a, Wednesday 3:00p - 3:50p, Wednesday 4:00: - 4:50p, Friday 11:00a - 11:50a, Friday 6:00p-6:50p, Friday 7:00p-7:50.

PROFESSOR CONTACT INFORMATION:
Dr. Diana Rennison
Email: drennison@ucsd.edu

COURSE OVERVIEW:
We will study the theory of evolution and the different levels at which organic evolution can be examined, ranging from variation at the population level within species, to the deep changes within the fossil record. We will dive into the evolutionary forces that generate and shape variation to better understand the amazing biodiversity that we see on earth today. We will look at the evolution of traits, genes and entire and consider patterns in everything from bacteria to multicellular organisms.

COURSE OBJECTIVES:
By the end of the course, students will be able to:

- Describe and integrate fundamental concepts of evolutionary biology.
- Dissect, distill, and communicate the results of primary literature from the field of evolutionary biology.
- Appreciate biodiversity from a comparative perspective.
- Identify the action of different evolutionary processes from patterns in nature.
- Outline experimental approaches to test for the action of various evolutionary mechanisms.

TEXTBOOK/READINGS:
No required textbook.
Optional supportive readings:

- A primer of Evolution – Michi Tobler. link: https://www.k-state.edu/biology/p2e/index.html
- Portions of Evolution 4th Edition by D.J. Futuyma and M. Kirkpatrick – Pdfs will be provided on canvas.

CANVAS:

The class will be run from the Canvas site. You will need to check this several times a week: canvas.ucsd.edu (click on BIEB150 link). Here we will post the course podcasts, PDFs of the lecture slides, assignment materials, and discussion section materials. Assignments will be submitted through canvas and some quizzes will also be administered through canvas.

If you have not used Canvas before, refer to the student help guides and videos, which are located on the left-side menu's help section (the question mark icon). Should you need any technical assistance with Canvas, please alert your instructor and send an email to servicedesk@ucsd.edu. In the header of the email, please write "Canvas". Make sure to include your name, course title and section, as well as your contact information in the email body.

Instruction on how to access your account for logging on to UCSD's Canvas sites can be found here: http://acms.ucsd.edu/students/accounts-and-passwords/index.html. Concurrent enrollment (extension) students are not added automatically. More information for extension students can be found here: https://extension.ucsd.edu/student-resources/

Etiquette for emails

All emails to professors and IAs should be polite and respectful, include your **first and last name** in the body of the email, and have **BIEB 150 in the subject line**. Do not rely on email as a sure and immediate form of communication with the instructor. I will do my best to answer emails within two business days. The most certain way to get your questions answered is to come to ask in class, come to office hours or ask you IA in discussion section.

WAIT LIST: If you are on the wait list for this class you will be automatically added if space becomes available. If you have any concerns, please contact the Biology Student Affairs Advising Services office at 858-534-0557 or go to their website (http://biology.ucsd.edu/education/undergrad/advising/index.html). Please do not ask IAs to add you to their section; they do not have any control over this process.

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

COURSE ELEMENTS:

Lectures:

Lectures will be given in person during the scheduled course times. Lecture slides will be posted on canvas as PDFs. Podcasts of the lecture will be posted on canvas following the lecture.

Discussion Sections:

Attendance at discussion sections is not required, but it is strongly encouraged — this is your main opportunity to discuss the class material, which will help your performance on assignments and quizzes. There are also required activities associated with each week

that can be done in groups rather than individually if you attend the in-person discussion section (i.e. less work for you).

Sections will meet beginning in the first full week of classes (the week of September 26th). Some discussion sections or class weeks will have assignments associated with them. The assignments are required even if you don't attend section that week. Discussion section assignments will be posted ahead of the first session of the week and assignments but be submitted by Friday at midnight each week. Note that material from these assignments is fair game for the quizzes.

Reading:
There is an optional reading for most class days you can find the PDF in the module for each class. I will post learning objectives for each class to help with focus on the most important concepts for each class that would be relevant in the reading.

Lecture learning objectives:

- To help you focus your studying on the core course concepts, I have written a series of learning objectives for each topic we will cover. The learning objectives for each class will be posted as the first slide. The learning objectives are the key to the class, and they are what I will base the quizzes on.

Canvas Discussion Boards:
There will be discussion boards on Canvas where you can post your questions and answer other students' questions. The IAs will monitor this but I encourage you to help each other! Please be respectful and kind.

EVALUATION:
Tests:
We will have *five tests* that will include class and discussion section content.
Two quizzes will be given online through canvas. Two quizzes and the final will be given in person. The lower one of these four quiz scores will automatically be dropped.

Test 1 – October 6th – online quiz – 24 hours to complete
Test 2 – October 20th – in class quiz – 20 minutes long
Test 3 – November 3rd – online quiz during class time – 20 minutes long
Test 4 – November 17th – in class quiz – 20 minutes long
Test 5 – Final Exam Week

Each quiz will each cover the material from the preceding 4 classes, including material from the Tuesday preceding the quiz. The final exam will cover material from throughout the quarter.

If you can't take ONE of the quizzes at the scheduled time: that's OK, that will be the score that gets dropped. During the quarter, if you become unable to take a quiz due to serious illness or other emergency AND you have already missed one quiz, email me before the quiz (the earlier the better) and we will discuss your options. If an emergency

arises during the quarter that will make you miss more than one quiz, email me as soon as possible and we will discuss your options.

Take the online quizzes on your own, without help from other people or other resources other than your own brain. You may use a calculator if needed. The quizzes are closed-book, meaning that you may not consult the book/readings, lectures, Internet, etc. Do not discuss or share information about the quiz with other students in the class until the quiz is over. Do not share information about the quiz outside the class at any time. Please see the Academic Integrity policy in the syllabus.

Students suspected of academic integrity violations on quizzes will be invited to a follow-up meetings where they will be asked to justify their answers. If the instructor isn't convinced during the meeting, or if the student refuses to participate, the violations will be reported to the Academic Integrity Office.

Learning objective assignments:
We will use the learning objectives as a tool to help you keep up with the class topics. If you do not attend class, it can be tempting to put off listening to the podcasts. To avoid these tendencies, you will need to turn in a learning objective assignment for each class. These will be based on the learning objectives from the day's lecture. You will need to write a response to the learning objective **in your own words, based on your own understanding** and submit it via Canvas. Use the appropriate terms, but do not borrow language from the lecture, the optional reading, or other people's writing; violations will be reported to the Academic Integrity Office and may result in sanctions (see Academic Integrity policy below).

Each learning objective assignment will be graded based on completion (2 points each). Late learning objective assignments will not be accepted given the aim is to keep students on pace with a low stakes activity.

To encourage you to invest thoughtful effort into the learning objective assignments, the IAs will also be spot-checking at least 6 of your learning objective assignments on random days during the quarter. Spot-checked learning objective assignments will be graded for thoughtful effort on this scale:

- 0 points: not turned in, or answer is very minimal, or answer doesn't address the learning objective.
- 3 points: incomplete or partially wrong answer.
- 6 points: answer is a thoughtful effort to address the learning objective and mostly correct.

Answers will not be marked down for grammar/language errors unless they are severe enough that the grader can't understand what you meant.

IAs may spot-check more than 5 learning objective assignments for each student during the quarter, especially if they find that a student is consistently turning in irrelevant or very minimal answers to the assignments.

Discussion Section Assignments:

Figure Explanation

There will be 5 assignments each worth 15 points. During the discussion section you will be assigned to a group. In the breakout groups you will have time to discuss one of the figures in the paper that was selected for the day (each group will have a different figure). Together your group will write down a brief explanation of the assigned figure and then at the end of the group time you will have a representative read your explanation to the whole discussion section. Explanations should be made as simple as possible (so a layperson may be able to understand).
*If you cannot attend the in-person discussion section, you (alone) can select one figure from that week's chosen paper and write a short text explaining the figure. This will be due by midnight Friday.

Simulation Questions
There will be 2 assignments each worth 15 points. During the discussion section you will be assigned to a group. In the breakout groups you will have time to go through the simulation activity and answer the associated questions.
*If you cannot attend the in-person discussion section, you (alone) can submit answers to the questions. This will be due by midnight Friday.

For both assignments, groups or individuals that have made a reasonable effort to explain the paper or answer the questions will receive a full 15 points.

Textbook Distillation assignment (due October 27th)
This assignment will be done in alone and will be worth 25 points. You will write short description of your chosen paper textbook style entry (one or two paragraphs) and create a graphic in the style of the textbook for placement in a specific topical section. Your paragraph(s) would either complement or replace one of the examples already there. Full rubric and details can be found on canvas.

Podcast (due November 21st)
This assignment will be done in pairs and will be worth 25 points. With a partner, script and record a 3–5 minute podcast that presents the same paper as the textbook entry assignment to the wider world. Full rubric and details can be found on canvas.

Late Assignment Policy:
Quizzes, discussion section and learning objective assignments will not be accepted late. The textbook distillation and podcast assignments can be submitted by the last day of classes without penalty.

GRADING BREAKDOWN:
40 points: Completion of each lecture's learning objective answer (one per class day, two points each)
36 points: Six spot checks on learning objective answers (six points each).
105 points: 7 Discussion Section Assignments (15 points each)
25 points: Textbook entry assignment
40 points: Podcast
90 points: 3 Quizzes (30 points each)

90 points: Final Exam
Total: 426

Your final letter grade will be based on your total number of points. If you get over 90% of the points you will receive an A, over 80% a B, etc. **If needed** to adjust the distribution of letter grades upward, grades **may** be based on a curve. The curve will only be used (if it is used) to move letter grade thresholds down, so it can only help your grade, not hurt it. For those taking the class pass/no pass (P/NP), the minimum final grade to receive a grade of P is a C-. The final course curve is based on the students that are enrolled in the course at the end of the quarter. Please note that the University will not allow us to change a letter grade after it has been turned in except in cases of clerical error.

COURSE SCHEDULE:

Month	Day	Topic
September	**22**	Lecture 1- Introduction & What Evolution is
September	**27**	Lecture 2 - Darwin's Fundamental Insights
September	**29**	Lecture 3 – Evidence for Evolution
October	**4**	Lecture 4 – A Mechanism for Change
October	**6**	Lecture 5 – The Raw Material for Evolution (Online) Quiz #1
October	**11**	Lecture 6 – Qualitative Variation
October	**13**	Lecture 7 – Evolutionary Forces Part 1 - Selection
October	**18**	Lecture 8 – Evolutionary Forces Part 2
October	**20**	Lecture 9 – Evolutionary Forces Part 2 Continued (In Class) Quiz #2
October	**25**	Lecture 10 – Quantitative Variation Part 1
October	**2**	Lecture 11 – Quantitative Variation Part 2
November	1	Lecture 12 -Adaptation and Maladaptation
November	3	Lecture 13 – Phylogenetics (Online) Quiz #3
November	8	Lecture 14 – Molecular Evolution and Detecting Selection
November	10	Lecture 15 –Evolution of Genes and Genomes
November	15	Lecture 16 – Sexual Selection
December	17	Lecture 17 – Speciation (In Class) Quiz #4
December	22	Lecture 18 – Coevolution and Interactions
December	**29**	Lecture 19 – Evolution of Diversity
December	**1**	Lecture 20 – Human Evolution
December	**4 – 10 (Date TBD)**	**FINAL Exam**

ACADEMIC INTEGRITY

Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result in sanctions. Sanctions can include an F in this class and suspension or dismissal from the University. So, think carefully before you act by asking yourself: a) is what I'm about to do or submit for credit an honest, fair, respectful, responsible & trustworthy representation of my knowledge and abilities at this time and, b) would my instructor approve of my action? You are ultimately the only person responsible for your behavior. So, if you are unsure, don't ask a friend — ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at academicintegrity.ucsd.edu. (Source: Academic Integrity Office, 2018)

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. Academic misconduct misrepresents your knowledge and abilities, which undermines the instructor's ability to determine how well you're doing in the course. Please do not risk your future by cheating.

To uphold academic integrity, students shall:
—Complete and submit academic work that is their own and that is an honest and fair representation of their knowledge and abilities at the time of submission.
—Know and follow the standards of the class and the institution.

Thus, no student shall engage in an activity that undermines academic integrity or facilitates academic integrity violations by others. This includes, but is not limited to, the following behaviors:

- No student shall procure, provide, or accept any material that contains questions or answers to any examination or assignment unless the student's possession of the material has been authorized by the instructor.
- No student shall complete, in part or in total, any academic work (e.g., examination, assignment, paper) or obtain academic credit (e.g., attendance, participation) for another person.
- No student shall allow any academic work or academic credit to be completed or obtained, in part or in whole, for themselves by another person.
- No student shall plagiarize or copy the work of others and submit it as their own work.
- No student shall employ aids in undertaking course work or in completing any exam or assignment that are not authorized by the instructor.
- No student shall alter graded class assignments or examinations and then resubmit them for regrading without the instructor's permission.

- No student shall submit substantially the same material more than once without prior authorization from the instructor, such as a paper that was written and submitted in another class.

(Source: UCSD Policy on Integrity of Scholarship, http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2).

If you do not understand these expectations and authorizations, please speak with the Instructor as soon as possible. Please read the official UCSD policy at https://academicintegrity.ucsd.edu/process/policy.html

Please do NOT post my lectures or class documents on public websites like Course Hero or others. I work hard on my lectures and do not appreciate the material being made public for anyone to see or download.

STUDENTS WITH SPECIAL CIRCUMSTANCES

UC San Diego (as an institution) and I (as a person and as the instructor of this course) are committed to full inclusion in education for all people. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students with DACA or undocumented status, to students facing mental health issues, other personal situations, and to students with other kinds of learning needs. Please feel free to let me know if there are circumstances affecting your ability to participate in class. Some resources that might be of use include:

• Office for Student with Disability, https://students.ucsd.edu/well-being/disability-services/index.html
• UC San Diego CAPS (Counseling & Psychological Services), https://wellness.ucsd.edu/CAPS/Pages/default.aspx
• UC San Diego Undocumented Student Services, https://uss.ucsd.edu/ Note: a list of campus resources can be found here: https://students.ucsd.edu/sponsor/undoc/resources/index.html
• Learning Strategies Center, https://commons.ucsd.edu/academic-support/learning-strategies/index.html

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 need to coordinate scheduling of quizzes with me. All of these arrangements should be made within the first two weeks of the quarter.**

Problems? If you have serious medical or personal problems during the quarter, the university
allows medical withdrawals. Contact the Biology Student Affairs Advising Services office at 858-534-0557 or go to their website.