

## **Evolution (BIEB 150) – Fall 2020**

Lecture - Tuesdays and Thursdays 11:00 am -12:20 pm PST  
Discussion – Friday 11:00 am – 11: 50 am or 12:00 pm – 12:50 pm

### **PROFESSOR CONTACT INFORMATION:**

**Dr. Diana Rennison**

Email: dreddison@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 also study how genomes evolve from bacteria to multicellular organisms. We will learn about the evolution of body plans in plants and animals and the molecular underpinnings of these developmental transitions. We will use these concepts to understand human evolution and learn how the genome revolution has shed light on evolutionary medicine.

### **COURSE OBJECTIVES:**

- Students will be able to describe and integrate fundamental concepts of evolutionary biology.
- Students will be able to explain the applications of evolutionary theory to diverse areas of science ranging from human health to biodiversity evolution and conservation.
- Students will be able to appreciate biodiversity from a comparative perspective.

### **TEXTBOOK:**

Evolution. 2017. Fourth Edition. Douglas Futuyma & Mark Kirkpatrick. Sinauer Associates. Sunderland, MA. ISBN 9781605356051. <https://evolution4e.sinauer.com/>

The book can be ordered through the UCSD bookstore.

You will also automatically be given a free trial of access to a digital version, if you do not want this YOU MUST OPT OUT or it will cost you money! Instructions for opting out can be found on canvas.

**\*If you want to use the digital version, you can find the RedShelf link under Class Information .**

### **CANVAS:**

BIEB 150 will be taught entirely online. In order to participate in this class you will need a computer or tablet and an internet connection to access the online course content.

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).

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/>

**ZOOM:**

You will need to set up your Zoom account. UCSD has purchased a Zoom site license for all students, staff, and faculty. You will need to install Zoom on whatever device you plan to use for the quarter. Go to <https://ucsd.zoom.us/> to get started.

**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](http://vac.ucsd.edu)).

**COURSE ELEMENTS:**

Reading:

There is a reading assignment for most class days. I will post learning objectives for each class to help you focus on the most important things you should be learning from the reading.

Lectures:

I will post a series (3-5) of short (10-30 min each) video lectures for each class day. These videos will have audio of me explaining the content as the slides are shown on the screen. You will need to watch the lecture by the start of the next scheduled class period.

Discussion Sections (Live):

In addition to the asynchronous class tasks above, you will have a discussion section that meets live (synchronously) via Zoom. Your IA will host a Zoom meeting at the day and time of your discussion section, and you should join the meeting if possible. Attendance (via Zoom) 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 activities that can be done in groups rather than individually if you attend the discussion section. To accommodate students in different time zones and with different work/childcare/etc. schedules, you may "attend" a different discussion sections from the one you are registered for. (Note: this policy may be change if it turns out everyone is piling up in a couple of discussion sections. Please attend the section you're registered for if you can.)

Sections will meet beginning in the first full week of classes (the week of October 5<sup>th</sup>). You can find a link to your discussion section's Zoom meeting on the Zoom LTI Pro area of the Canvas site. I will also post a list of discussion section times and Zoom meeting IDs on Canvas.

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. I will post information about those on Canvas as we go through the quarter. Note that material from these assignments is fair game for the quizzes.

#### Q&A session with Dr. Rennison (Live):

Every second Tuesday starting week 2 (October 6<sup>th</sup>) at our regularly scheduled class time (11-12:0 PM), I will host a live question and answer session via Zoom. This will be a way for you to get questions answered about the quiz (please ask questions via chat) this will also be a kind of group office hours. You can find a link to this Zoom meeting on the Zoom LTI Pro area of the Canvas site. Note these zoom sessions will be recorded and made available to students asynchronously. **One-on-one office hours can be scheduled as needed, email to arrange a time.**

#### 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, and I will post a list of objectives for each topic as we go through the quarter. The learning objectives are the key to the class and they are what I will base the quizzes on.
- There are learning objectives for the class that are not covered in lecture, or only partly covered in lecture (e.g., those based primarily on the reading). I will also separately post a list of complete learning objectives for each topic.

#### Canvas Discussion Boards:

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

#### **EVALUATION:**

##### Quizzes:

We will have *six quizzes* that will include class and textbook content. The lowest grade will be automatically dropped.

Quiz 1 – October 8<sup>th</sup>

Quiz 2 – October 22<sup>nd</sup>

Quiz 3 – November 5<sup>th</sup>

Quiz 4 – November 19<sup>th</sup>

Quiz 5 – December 3<sup>rd</sup>

Quiz 6 – Final Exam Week

The Thursday quizzes will start at 11:10 PM and end at 11:35 AM. This is during the lecture time for BIEB 150 as scheduled by the Registrar, so you should not have class conflicts during these times.

Each quiz will each cover the material from the preceding 4 classes (with the exception of the first quiz which will only cover 2 classes), including material from the Tuesday preceding the quiz. For example, the quiz on the Thursday of week 4 (October 22<sup>nd</sup>) will cover the readings and lectures posted the Thursday of week 2, the Tuesday and Thursday of week 3 and the Tuesday of week 4. I will post the learning objectives that each quiz will cover. The quiz during finals week 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. If you know in advance that you absolutely cannot take 5 of the quizzes at the scheduled times, email me before the first quiz. 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.

The quizzes will be taken on Canvas. The IT folks have suggested updating your web browser or using Chrome if you are having problems. If that fails, email [servicedesk@ucsd.edu](mailto:servicedesk@ucsd.edu).

Take the 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 Zoom follow-up meetings where they will be asked to (in real time, on video) 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. In an online class, it can be tempting to put off doing the reading, watching the lectures, etc. until you are so far behind you can't catch up. To help avoid this, 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/reading. 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 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.

To encourage you to invest thoughtful effort into the learning objective assignments, the IA 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 Figure Explanation Assignments:

There will be 5 assignments each worth 15 points. During the discussion section you will be assigned to a group and sent to a zoom breakout room. In the breakout room 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 breakout 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). Groups that have made a reasonable effort to explain the paper will receive a full 15 points.

\*If you cannot attend the live 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.

#### Textbook entry assignment (due November 17<sup>th</sup>)

This assignment will be done in alone and will be worth 25 points. You will write a textbook entry (one or two paragraphs) and create a graphic in the style of the textbook for placement in a specific section in the current text. 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 December 1<sup>st</sup>)

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:

Late assignments will be marked down 10% for each calendar day (or part of a day) that they are late.

#### **GRADING BREAKDOWN:**

40 points: Completion of each lecture's learning objective answer (one per class day)  
 36 points: Spot checks on learning objective answers.  
 75 points: 5 Discussion Section Assignments (15 points each)  
 25 points: Textbook entry assignment  
 25 points: Podcast  
 150 points: 5 Quizzes (30 points each)  
**Total: 351**

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	Suggested Textbook Chapter(s)	4e Relevant Pages
October	1	Introduction	NA	
October	6	Natural Selection and Darwin	Chapter 1 & 3	[ch 1] 3-21 [ch 3] 56-63
October	8	The History of Life & The Fossil Record <b>Quiz Day 1</b>	Chapter 17	432-465
October	13	Phylogeny	Chapter 2 & 16	[ch 2] 28-42 [ch 16] 401-409
October	15	Mutation and Variation	Chapter 4	80-85, 88-95
October	20	Genetics and Natural Selection	Chapter 5	104-126
October	22	Phenotypic Evolution <b>Quiz Day 2</b>	Chapter 6	135-144, 155-161
October	27	Genetic Drift	Chapter 7	165-177, 181-187
October	29	Evolution in Space	Chapter 8	192-208
November	3	Speciation	Chapter 9	213-242
November	5	Sexual Selection	Chapter 10	247-260

		<b>Quiz Day 3</b>		
<b>November</b>	10	Conflict and Cooperation	Chapter 12	295-308
<b>November</b>	12	Coevolution and Interactions	Chapter 13	323-338
<b>November</b>	17	Evolution of Diversity	Chapter 19	502-507
<b>November</b>	19	Genes and Genomes	Chapter 14	345-365
		<b>Quiz Day 4</b>		
<b>November</b>	24	Evolution and Development	Chapter 15	369-389
<b>December</b>	1	Contemporary Evolution	NA	
<b>December</b>	3	Evolutionary Medicine	NA	
		<b>Quiz Day 5</b>		
<b>December</b>	<b>8</b>	Evolution and Conservation	NA	
<b>December</b>	<b>10</b>	Evolution of <i>Homo sapiens</i>	Chapter 21	
<b>December</b>	12 - 19	<b>FINAL Exam</b> <b>Quiz Day 6</b>		

### **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](http://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.

**Students suspected of academic integrity violations on quizzes will be invited to Zoom follow-up meetings where they will be asked to (in real time, on video) 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.**

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>

### **Etiquette for emails and in the online classroom**

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 ask in the Friday Q&A session, your discussion section, or office hours.



**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](mailto: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.