

Biology 10: Introduction to Biology

Spring 2016 Syllabus

Course #22750 Tuesday Lecture: B210, 6:00 pm-8:50 pm

Course #22751 Wednesday Lab: B202, 6:00 pm-8:50 pm

Course #22752 Thursday Lab: B202, 6:00 pm-8:50 pm

Instructor

Brad Balukjian, Ph.D.

bbalukjian@peralta.edu

www.bradbalukjian.com

Office Hour: Wednesdays, 5-6 pm in B202 (the lab) or e-mail for an appointment if you can't make this time.

Overview

The unifying theme for the course is this: **Start small. Go big. Or go home.**

That means two things, one biology-related and the other more about life in general:

1. Biology is the study of life, and all life is connected through evolution (having all descended from a common ancestor that first appeared about 3.5-4 billion years ago). Although you may not think you have much in common with a mushroom, for example, you're not as different as you might think. Consider this: Did you know that a mushroom has more genes in common with you than it does with the grass surrounding it? Not only that, but the basic organization of your body is similar to that of a mushroom—you both have bodies comprised of cells that contain the same kinds of structures (called organelles), which are made of the same kinds of molecules, which are made of the same kinds of atoms, which are made of the same kinds of protons, neutrons, and electrons. We're all built of the same stuff, even if we look different on the outside. So when I say start small and go big, I mean that our study of biology is going to start with the smallest building blocks of life (those protons, neutrons, and electrons) and go all the way to the level of entire organisms; along the way, we'll see how that entire biological hierarchy is organized and related.

2. The "or go home" part of our unifying theme has to do with my teaching philosophy. Look, we all have crazy busy lives that seem to just get crazier and busier each year. I get that. I know there will be days when you don't feel like coming to class, or you don't feel like working once

you're there. But I want to be here at Laney, and I expect you to want to be here too. I invest a lot of time and effort in designing this course, and I expect you to give your best effort as well.

My style of teaching is based on a philosophy I call **PARE** (Personalized, Active, Relevant, Equitable). It means that I want to get to know how each of you as people and as learners (Personalized); it means I use a lot of interactive activities besides a straight lecture, not because I want to use gimmicks, but because research shows that students generally learn best when they are actively engaged in their own learning process (Active); it means I believe the question "why do I have to know this?" is a fair one, which I will answer throughout the course (Relevant); and it means that I try to create as fair a classroom environment as I can, ensuring that everybody has the opportunity to succeed (Equitable).

There is something for everyone in this course, which is designed for non-majors. **We'll cover basic chemistry, cell biology, genetics, metabolism, evolution, ecology, and biodiversity as we work our way through 3 units: (1) microbiology; (2) genetics and evolution; and (3) biodiversity.** My goal is for you to walk away with a newfound appreciation for biology and its importance.

Required Materials

1. Biology 10 Lab Manual: Available from bookstore. This is the manual you will use in the lab portion of the course.
2. Textbook, "Campbell Essential Biology with Physiology," 4th edition, by Eric Simon, Jean Dickey, and Jane Reece. You can rent this for the semester for around \$20 from textbookrentals.com, chegg.com, valorebooks.com, or another online textbook company. You can also purchase or rent it in the campus bookstore. There is also a copy of the textbook kept on the reserve shelf at the library, which you can check out for up to 2 hours. The 3rd edition, which is fine to use, is also available used in the bookstore.
3. Two Green Books, for in-class activities, available at the bookstore.
4. Three scantrons, 1 for each exam, available in the bookstore. Each scantron should have space for at least 25 questions.

Highly Suggested Materials

- 1) A calculator, especially for lab (besides the one on your phone, which I'd rather you not use, because that means you'll be using your phone too)
- 2) Breath mints. We do a lot of group and partner work. Just sayin'.

Your Expected Learning Outcomes (or, what you should get out of the class)

1. Relate and apply course content to your personal life and answer the question "why is this important?"
2. Apply a scientific approach to solving problems and answering questions.

3. Differentiate between a hypothesis and a theory.
4. Discuss the principles of biology as the study of living things including biological hierarchies, the classification of living things, and chemical processes of the cell and organisms.
5. Work among the different levels of the biological hierarchy and understand the interconnectedness between levels.
6. Improve confidence in scientific knowledge and ability to apply knowledge to related situations.
7. Take an active role in your own education by taking personal responsibility for learning and being able to explain topics in your own words.
8. Explain how all of biology is connected through time by evolution and articulate the general theory of evolution and its three mechanisms.
9. Read and discuss articles related to current issues in biology. Form opinions on these issues and express and defend those opinions biologically in discussions and written essays.
10. Cooperate with others working as a group, delegate work to others, and collaborate with your group.
11. Use microscopes and other equipment correctly and care for them properly.

On Moodle

Moodle is your friend and mine, so please get comfortable using it as quickly as possible. The page for our class can be accessed through <http://eperalta.org/spring2016>. All of the lectures, handouts, and other class materials will be posted to Moodle, you may be asked to hand in assignments on Moodle, and I will use Moodle to send out important class announcements. So yeah, it's important.

A Note on Access

I realize that some of you may not have access to the Internet at home. However, it is important in this class that you regularly check our class page on Moodle. For those of you with limited off-campus Internet access, please take advantage of the computers available in the following locations on campus:

- Library
- Business Lab, F251
- CIS Lab, G273
- Technology Center, F170

Grade Policy

Your grade in the course is out of a possible 800 points. You can keep track of your grade in the class through the Gradebook section of Moodle. Your final grade will be based on your number of total points at the end of the semester as follows:

- A 90-100% (720-800 points)
- B 80-89% (640-720 points)
- C 70-79% (560-640 points)
- D 60-69% (480-560 points)
- F Below 60% (Below 480 points)

Please note that I do not grade on a curve. Why? Because I think using a curve pits you against each other and encourages unhealthy competition; I think a better model is that each of you gets the grade you earned, regardless of how your peers performed.

Points Breakdown (see FAQ for more details)

3 exams @ 100 pts each	300 pts
3 lab practicals @ 30 pts each	90 pts
13 labs @ 10 pts each	130 pts
13 lecture participation sessions @ 10 pts each	130 pts
2 study question assignments @ 30 pts each	60 pts
1 podcast assignment @ 30 pts	30 pts
1 microscope quiz @ 10 pts	10 pts
1 calendar assignment @ 25 points	25 pts
New York Times registration	25 pts
Total	800 pts

Class Schedule (subject to change; **important dates in bold**)

Week of	Lecture Title	Suggested Reading	Lab	Due Dates
UNIT 1: Microbiology				
1/25	Introduction	Ch. 1 (p. 2-18)	What makes science important? (p. 3-12)	
2/1	The atom's apple	Ch. 2 (p. 22-33)	Chemistry in practice (p. 13-20)	NY Times registration due
2/8	Why you'll never eat a chocolate frosted donut again	Ch. 3 (p. 36-48)	Using a microscope (p. 21-28)	Calendar due; Green Team study questions due

2/15	The office inside your cells	Ch. 4 (p. 54-71)	You are what you eat (p. 29-44)	Yellow Team study questions due
2/22	Energy means a lot more than Red Bull	Ch. 5 (p. 74-82), Ch. 6 (p. 90-101), Ch. 7 (p. 106-112)	What makes something a cell? (p.45-54)	Blue Team study questions due
2/29	Exam 1 , Why you are nothing more than the letters A, C, G, T	Ch. 3 (p. 49-51), Ch. 10 (p. 172-177).	Lab Practical 1	
UNIT 2: Genetics and evolution				
3/7	Operation Give A Crap begins PMAT (People Must Always Try!) and how to make sperm and eggs	Ch. 8 (p. 120-140), Ch. 10 (p.177-182)	Why do we breathe oxygen? (p. 55-64); Microscope quiz and conferences	Red Team study questions due
3/14	Widows' peaks and pea sex	Ch. 9 (p. 144-149), Ch. 10 (p. 178-187)	How do cells make more cells? (p. 65-74)	White Team study questions due
3/21	SPRING	BREAK!!		
3/28	Wallace (and Darwin's) Big Idea	Ch. 13 (p. 242-258)	What's so great about DNA? (p. 75-90); Note: No Thursday lab due to holiday	Podcast homework due (everybody)
4/4	Where do species come from?	Ch. 14 (p. 269-271; 274-277; 285-289)	How do things change? (p. 91-102)	Green Team study questions due
4/11	Exam 2 and Lab Practical 2			
UNIT 3: Biodiversity				
4/18	Size doesn't matter	Ch. 15 (p. 294-295; 299-310)	The diversity of small things (p. 103-112)	
4/25	Beautiful botany	Ch. 16 (p. 314-332)	Evolution of plants (p. 113-128)	Yellow and Blue Team study questions due
5/2	Animal House I	Ch. 17 (p. 336-353)	Animal Phylogeny (p. 129-146)	Red Team study questions due

5/9	Animal House II	Ch. 17 (p. 354- p. 367)	Human evolution (p. 147-156)	White Team study questions due
5/16	Jeopardy! and potluck party		Lab Practical 3	
5/23	Final Exam			Last date to hand in extra credit and makeup labs is May 24

Cheating/Plagiarism

My biggest pet peeve is cheating. As a student at Laney, you are expected to abide by the honor code. If I catch you cheating, the consequences will depend on the situation and could result in a referral to the Dean.

Dropping the Class

I'd hate to see you go, but if you decide to drop the class you need to do so by January 31 to avoid getting a W (withdrawal) on your transcript. The deadline to drop with a W (and not receive a letter grade) is April 30.

For Students with Disabilities

I want to make this course as accessible as possible to students with disabilities that may affect any aspect of course assignments or participation. I encourage you to let me know by the second week of the course regarding any accommodations that will improve your experience in (or access to) this course. You can also contact the Disability Services and Programs for Students at 464-3428 for assistance.

A Note on Punctuality

While I don't take off points for being late to class (this isn't high school, and I don't see my role as being the hall monitor), I expect you to come to class on time. This is both a matter of respect to me and your fellow classmates (coming in late is disruptive) and for your own good in the class (with only one lecture and one lab a week, it is really hard to miss any time and expect to do well). If you anticipate being regularly late to class, perhaps this class is not the right one for you.

FAQ

Q1: What will be on the exams, and does spelling count?

A1: The exams will be held during our Tuesday lectures and are written to take up to 75 minutes. I'm not the biggest fan of exams, but I do believe they serve a purpose. I will have some multiple choice questions, but do not rely too much on them; you may also have some explanatory multiple choice, short answer, essay, and fill-in-the-blank questions. I rewrite my exams every semester, so don't bother asking around for copies of old exams. I won't take points off for bad spelling, but I do expect you to write legibly and intelligibly.

Q2: Are the exams comprehensive?

A2: The first exam focuses on the first unit, the second exam on the second unit, and the final exam is comprehensive, but focuses mostly (75%) on the third unit. The final is comprehensive because everything in the course connects from beginning to end, and so to be successful in the course, you need to understand how the whole thing stands together.

Q3: What happens if I miss an exam or lab practical?

A3: Make-up exams will only be given under extraordinary life circumstances (if you have one of these, come talk to me, preferably with plenty of advance notice). Otherwise, a missed exam or lab practical will be marked as a zero.

Q4: What are the lab practicals?

A4: Lab practicals are exams in the lab portion of the class in which you will circulate among stations and answer questions about the experiments and procedures you've completed during lab sessions.

Q5: Can I text during class?

A5: If by text you mean can you bring your textbook to class, then of course. But if you mean can you write "this prof sux falling asleep lol" to your friend on your smartphone then no, you cannot. Keep all portable electronic devices stowed for the duration of class; pretend like you're on a plane.

Q6: How do the labs work?

A6: Read the lab before coming to lab—you'll find you can fill in a lot of the work beforehand. Bring your textbook and lecture notes to every lab—trust me, they will help you. I expect you to complete all the exercises in the lab manual during the lab period. You will work in groups, and each week one of you will be the captain, whose lab manual I will check in detail at the end of the period as the representative for your group. Although I will not check each of your manuals in detail, you are expected to have done all the work and to have answers that reflect those of your captain. If you do not finish in the lab period, I will give you either full credit or a grade

based on what you have done. If you miss a lab for any reason besides an emergency, you can do whatever work you can at home and earn up to 5 points for handing it in late. If I have excused your absence due to an emergency, I will simply remove that assignment from the calculation of your final grade. **The last day to submit makeup labs for credit is May 24.**

Q7: What is your favorite podcast?

A7: Serial. Although I'm slightly disappointed with this new season.

Q8: Can I turn in an assignment late?

A8: No. No late assignments will be accepted.

Q9: Do I have to do the textbook reading?

A9: I highly recommend reading the assigned chapters to provide more context for the lecture material. Doing the reading can also help you better understand class material, especially since many of my examples will come out of the book. But all of the questions on exams will be based on material that is covered in lecture, *i.e.*, I will not ask you about things in the book that were not also covered in class.

Q10: What is graded under "Participation?"

A10: My dad used to always tell me, "Brad, no matter what, just show up." That's great advice, Dad, but showing up is only half the battle. When you come to class (and I expect you to come to every class), I also expect you to be fully present with a good attitude and an open mind. For each of the lectures (other than the first and last weeks, which don't count towards participation), you can earn a full 10/10 if you participate in all activities. This means you show up and you complete the Green Book activities. Those points should be gravy.

Q11: Who's going to win the Super Bowl?

A11: The Carolina Panthers. Put your money down now.

Q12: What are the study question and podcast assignments?

A12: Following every lecture, I will post a set of 6 study questions to Moodle. These questions act as your study guide for the exams. Each week starting the week of 2/8, one of the Crayola War teams (you will all be divided into 5 teams) is responsible for handing in answers to the study questions from the previous lecture (each student on the team must hand in their own answers). The podcast assignment is a writing exercise based on a podcast you will access through Moodle.

Q13: How can I contact you if I have a question? Instagram?

A13: Um, no. The best way to reach me is via e-mail (bbalukjian@peralta.edu). I will do my best to reply as quickly as possible, but please keep in mind that I have other work responsibilities in

addition to teaching this class (I write as a freelance journalist) and a personal life (believe it or not), so it may be a bit before I can reply to you. I have a very open-door policy, and if you are ever concerned about something or have an issue you want to bring up, by all means, come talk to me. Communication is key.

Q14: Can I earn extra credit?

A14: Yes! There are lots of ways you can get extra credit. **The last day to hand in extra credit is May 24.**

1. Participate in an enrichment activity (you can do this once, for 5 points). Options include: Schedule an appointment with an academic counselor (Tower, 3rd floor) to talk about your future career and/or educational options, or attend another community activity for your own personal/professional development (get my approval ahead of time). You will need to provide me with some evidence of your participation, such as a signed slip from the counselor or a selfie of you at the activity.
2. Win the Crayola War (20 points for the first-place team, 10 points for second place). We'll discuss this more in class, but you'll be working in teams in lecture all semester, and the winning teams earn extra credit.
3. E-mail me at least one day before the Tuesday lecture with a recent news story about a topic that relates to something that we've discussed in class. I will ask you to present the topic at the start of lecture by giving a brief description of what was found and how it relates to class. There will be a maximum of 2 stories presented per lecture, and those spots will be filled on a first-come, first-served basis. 5 points, available one time.
4. Attend at least two tutoring sessions with our class tutor (times and days TBA). You will need to sign in with the tutor to get credit. 5 points.

Q15: Does attendance count?

A15: Yes. As mentioned earlier, each lecture class includes 10 points for completing the Green Book activities. Missing a lecture means you will get 0 points for that class.

Q16: Can you give me a study guide for the exams?

A16: No. I don't believe in a study guide that lists all the information that is going to be on the exam—if that was the case, you could just ditch class and get a copy of the study guide from a friend to cram for the exam. That's not learning. So instead, I give you a set of study questions after each lecture. Those questions provide a reasonable study guide. Remember, however, that any material presented in lecture is fair game for the lecture exams, regardless of whether or not it appears in a study question.

Q17: What do we need the Green Books for?

A17: Every lecture, we will have multiple activities that require you to write in your Green Book. At the end of every lecture I will collect your Green Books to check your participation and

answers and then will hand them back in lab. In order to earn the 10 points for each lecture, you need to complete all of the Green Book activities for that day.

Q18: What the crap is Operation Give A Crap?

A18: After the first lecture exam I will take a look at your scores, and anyone scoring a 70 or lower will be enrolled in Operation Give A Crap. Consider it an academic intervention. Low test scores are a red flag that you are not making the expected progress, and I will therefore intervene early to help you get back on track. More details will be given on the program as we approach the first exam.

Q19: What is the Calendar assignment, due February 8?

A19: On the first day of class, you will receive a calendar for the spring semester. Please write in the important test and due dates from your other classes as well as any major events you have on your schedule and hand in a copy to me on February 8 (keep a copy for yourself). This is mainly to help you organize your long-range planning for the semester.

Q20: What is the New York Times registration, due February 2?

A20: Laney College has arranged for free electronic access to the New York Times this semester, one of the most top-quality newspapers in the country. I am requiring you to sign up for access by 2/2; go to www.nytimes.com/passes and follow the instructions to set up your account. You will need to print out the registration confirmation and hand it in on 2/2. In addition to keeping you informed, the Times has a great science section, which you can use to find articles for extra credit (see item 3 on Q14 above). Other good websites to find recent biology news include www.sciencedaily.com and www.iflscience.com.