California State University, Los Angeles
Department of Biological Sciences
BIOL 1030: Life Science, Fall 2019

Course Information

INSTRUCTOR INFORMATION

Instructor: Professor Alexandra Garcia
Office Location: ASCL 351(La Kretz Building)
Email:agarc716@calstatela.edu
Office Hours: Thursdays, 2:15 PM – 4:15 PM
Class Days/Time: Tuesdays/Thursdays, 4:30 – 5:45 PM (lecture section: 01) BIOS 334
Lab Day/Time: Tuesdays, 6:00 – 8:30 PM (lab section: 02) ASCB 344
Thursdays, 6:00 – 8:30 PM (lab section: 03) ASCB 344
Prerequisites: None

COURSE DESCRIPTION

We will go over the principle concepts of life sciences to provide you an introduction to the nature of science, metabolism, inheritance, evolution, ecology, and organismal structure and function.

In this course we will actually be doing science pedagogy! A large majority of Biology undergraduate courses contain little class engagement (e.g., asking questions, giving presentations, and working in teams) than classes in English, Phycology, and Business Administration. To address this issue, the course is based on the PEL (Presentation Enhanced Learning) approach. You will be creating two student-centered lectures that incorporates active learning techniques covering topics in Life Sciences. One of the presentations will be held during the first half of the semester and the other in the second half. You will be working with teammates to develop these project presentations and communicate the significance of your topic to your peers. By the end of the course you will gain experience in teaching Life Sciences and integrate these techniques to your future career. Thus, the course will emphasize critical thinking as you will be creating, evaluating, analyzing, and applying through your instruction and through the teaching from your peers.

No credit toward Biology major or minor. Recommended for Elementary Subject Matter (ESM) majors. Lecture 3 hours, laboratory 3 hours. GE B2.

COURSE OBJECTIVES/OUTCOMES

Upon successful completion of this course, students will be able to:

- Apply scientific reasoning and evaluate evidence to reach a conclusion.
- Evaluate the strengths and limitations of scientific epistemology.
- Describe the relationship between the history of photosynthetic organisms on Earth and Earth's climate.
- Describe the attributes shared by all living systems.
- Relate the processes of inheritance and evolution.
- Describe the relationship(s) between DNA, genes, the organism, the environment, and adaptation.
- Compare and contrast plant and animal solutions to similar fundamental life challenges.
- Explain why the diversity of secondary chemicals (with impacts on human health) is higher in plants than in animals.
- Work collaboratively with peers to find a solution to a problem.
- Formulate a sound hypothesis based on observations.
- Design an experiment with appropriate controls.
- Analyze data to evaluate alternative hypotheses.
- Write a scientific report.
- Describe the fundamentals of physical life science (physics and chemistry) required by the California standards.
- Demonstrate an improved ability to formulate hypotheses and evaluate the accuracy and precision of experimental data;
- Apply the scientific method to simple problems in order to develop reasonable conclusions.
- Develop and participate in hands-on activities stressing active learning;
- Actively participate in group learning, and collaborative sharing of written and oral presentations of findings;
- Students will have gained hands-on experience from laboratory activities;
- Be able to extract and integrate useful life science online resources with classroom materials.
- Demonstrate the ability to use technology by completing tasks such as downloading assignments and reading materials from the Internet and course webpage and by designing elementary school science activities.
- Apply online and in-class experiences to their future elementary teaching of Life Science.
- Demonstrate knowledge about specific topics in life science as required by the new California Science Standards for multiple subject credentials.
- Improve their understanding of the certainty, universality and limitations of the scientific knowledge.
- Develop knowledge of and skills to use Internet resources and in-class demos for teaching life science.
- Develop students' confidence in regards to life sciences and their ability to communicate effectively those concepts at the level appropriate to K-8 settings.
- Explain the connection between science and society in terms of environmental, cultural and societal impacts.

Required Course Materials:

Required Textbook: *Concepts of Biology* (available for free, online, by OpenStax: http://cnx.org/contents/s8Hh0oOc@9.18:Pj8cW7X1@4/Introduction

Other Readings
ALL other additional reading materials, articles, multimedia, and videos will be provided by the instructor on the CANVAS course site for you to review.

Course Structure

Classes meet face-to-face twice a week, and you will also access an online platform using the Cal State LA learning management system called CANVAS frequently to reinforce concepts covered in class. I will ask you to think at high cognitive levels beyond basic memorization of facts, and how to apply what you learn in this class to choices you make in your life.

Computer Requirements

You will need to have access to Word, Adobe PDF, and PowerPoint to complete reading and written assignments.

You will need to have an up-to-date browser, operating system and some additional software on your computer to take this class. Check the ITS Helpdesk Student Resources page for instructions. Some of the documents in this course will be available to you in PDF form. You will need download and install Adobe Acrobat Reader software on your computer.

Assignments and Grading Policy

Assessments are based on a detailed grading rubric developed for this course:

Grading Criteria / Points Possible:

Course Grading: Final grades will be based on the following combination of assignments:

25 points – Team Presentation 1
40 points – Team Presentation 2
40 points – Exam Question Assignments
45 points – Discussion Forum Posts
50 points – In Class Participation
80 points – Midterm Exam I
120 points – Comprehensive Final Exam
300 points – Laboratory Activities and Assignments (Detailed in the Laboratory Syllabus)

Total Course = 700 points

Grading Scale: You will receive a single grade for the lecture and lab portions of the course. Letter grades will be determined based on the grading scale below.

Grade	Minimum Percent
A	92
A-	90
B+	88
B	82
B-	80
C+	78
C	72
C-	70
D+	68
D	62
D-	60
F	<60

4. Policy: Everything submitted as an assignment, project, or discussion post must be original work. References to resource materials are expected and proper citation is required. Assignments are due on the dates specified. *Late submissions will not be accepted.*

Rubrics

I will be using Rubrics in all of the assignments in order to provide you with specific and descriptive criteria to evaluate your work. **Please submit all assignments in MS Word format (using a .doc. or .docx file extension).**

Grades

You can view your grades using the *GRADES* button in the course navigation links. Please check your grades regularly to make certain that I have received all your assignments. If you have a question about a grade, email me at agarc716@calstatela.edu. Please do not post your personal concerns in a discussion forum.

Course Communication

Interaction with Instructor

The Instructor will make every effort to communicate frequently with students through announcements and postings within the CANVAS site. Post any questions or comments you have about the course content and/or requirements in the *Announcements* forum. Questions of a more personal nature can be sent to the Instructor via email to agarc716@calstatela.edu.

As a student, you should expect to receive assignment feedback and responses to postings within 48 hours. The Instructor will post an announcement alerting the students if he or she will be unavailable for more than a day.

Email Policy

I will respond to a received email no later than 48 hours from your message. I will post an announcement alerting you if I will be unavailable for more than a day. It is your responsibility to check your email daily for updates and announcements. Excessive emails impact both the professor and the student. Please make sure you have a legitimate reason for emailing.

I will email you about:
• Questions arising from difficulty in understanding course content.
• Requests for feedback on a graded assignment.
• Private issues.

I will not respond to email about:
• Lacks a subject line clearly stating the purpose of the email.
• Raises an inappropriate question.

Questions:

In online courses it is normal to have many questions about things that relate to the course, such as clarification about assignments, course materials, or assessments. Please post these in the *Frequently Asked Questions* forum.

My Teaching Philosophy:

My teaching philosophy is grounded in high expectations, accountability, and belief in appropriate behavior conducive to learning. Five principles guide my teaching philosophy:
1. All students can become lifelong learners.
2. Significant change requires significant commitment and time.
3. Struggle is a necessary and important part of life.
4. Students must accept responsibility for their learning progress.
5. I will never do for students what students can do for themselves.

That said, I will work hard and use multiple ways of learning to help you succeed in this course. Hopefully we'll also have a few laughs as we go along.

Participation and Attendance:

Please arrive to class on time and ready to learn. I expect all students to attend every class session. There is plenty of research that shows final grades are positively correlated with attendance. To this end you will be able to earn *classroom activity* points in every class meeting, but cannot make them up if you are absent. Thus, if you miss more than two class meetings, your final grade will be negatively affected! Assignments are due at the start of class (or on your way out if we did it in class). You will talk and work frequently in small groups, and sometimes present your ideas to the entire class. Most importantly, please do not disrupt the learning environment, rights, and property of others. Of course, all gadgets not conducive to learning in the course, such as cell phones/music devices/etc. should be turned off during class. Be honest, hold yourself accountable for your actions, and hold me accountable for mine.

Respectful Classroom Atmosphere:

This class is a "judgment-free zone" at all times. This means that when you disagree with somebody's opinion on a subject, you do not have the right to sling insults, raise your voice, or criticize them. I most certainly encourage disagreement on controversial topics and conversations are livelier if people do disagree on a subject. However, polite civil disagreement and outright hostility are two very different things. I will not tolerate hostility in the classroom, and anyone participating in this behavior will be escorted out of the room and not allowed to return for the rest of the class period.

Evolution:

Evolution and natural selection are central tenets of biology and will be critical aspects of this course, openly discussed and referred to frequently. If you can live by the quote "Respect for data, comfort in faith" then you'll be fine in this class.

Math:

Every biologist uses math and statistics. In this course you will use some math as it applies to biology. This mostly includes making and interpreting graphs, but may also include calculating averages and variation around an average. I will help you and there will be chances to practice. NOTE: a calculator is good for this class.

Discussion Forums:

Each week begins on Tuesday morning. You will be required to post one original thread on CANVAS by **Thursday at 11:55pm** and respond to one other. You have until **11:55pm on Sunday** evening to complete the discussions on the assignment for the week it's due. Within 48 – 72 hours of a discussion's end, I will review all student responses and post a response as part of *Announcements*.

You will be assessed on the content, appropriateness, length, and how well the post is written (grammar and punctuation). See the rubric below. I expect at least 2-3 thoughtful and well written paragraphs. You may find it useful to write your post on Word, which

can assist with spellcheck, and then cut and paste it into CANVAS. The points earned by each student will be posted to the online gradebook no later than one week after the discussion ends.

All students have the right to express their own opinions and every other student must respect this right. Any student posting a comment disrespectful of this right will be asked to leave the discussion, and a grade of 0 will be recorded.

Three suggestions to help you be successful:
1. Base your discussion posts on an authoritative source.
2. Get to the point! The longer posts seem to generate the least enthusiasm among the other learners. If needed, chunk your posts into multiple, reader-friendly posts.
3. Get some initial ideas into the discussion within the first few days of the discussions. Then, continue to add throughout the week.

Netiquette
When posting on the discussion boards and chat rooms it is important to understand how to interact with one another online, ***netiquette***. You can read more about the rules of netiquette at 15 Rules of Netiquette for Online Discussion Boards

Virtual Office Hours
N/A

Turnaround/Feedback
During the week (M-F) I will check *Frequently Asked Questions* and monitor the discussion board several times a day. If you have a concern and send me an email message, you can expect a response within two days.

Helpful Student Resources
Technical Resources

Information on CSULA technical support resources for students: Technical Support

Student Support Services
Information on CSULA student support resources for students: Student Services

Academic Support Services
Information on CSULA academic support resources for students: Academic Support

Course & University Policies

Student Handbook

Information on student rights and responsibilities, academic honesty, standards of conduct, etc., can be found in Schedule of Classes for the current quarter visit the Cal State LA Schedule of Classes Information under Policies and Procedures.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Students should be aware of the current deadlines and penalties for adding and dropping classes by visiting the GET home page. (Registrar news and information)

Americans with Disabilities Act (ADA)

Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation. For more information visit the Office for Students with Disabilities home page. http://web.calstatela.edu/univ/osd/atlc.php.

Academic Honesty/Student Conduct

This link contains the Cal State LA Policies and Procedures on Academic Honesty: http://ecatalog.calstatela.edu/content.php?catoid=12&navoid=842

Academic Honesty: Many incidents of plagiarism result from students' lack of understanding about what constitutes plagiarism. However, you are expected to familiarize yourself with Cal State L.A.'s policy on plagiarism. All work you submit must be your own scholarly and creative efforts. Cal State L.A. plagiarism as follows: "At Cal State L. A., plagiarism is defined as the act of using ideas, words, or work of another person or persons as if they were one's own, without giving proper credit to the original sources."

Student Conduct: http://ecatalog.calstatela.edu/content.php?catoid=12&navoid=843

Course Outline/Schedule of Assignments:

Tentative Lecture Schedule:

WEEK	***DATE***	***TOPIC(S)***	***Read:***
1	Aug. 20	Intros, lectures and human nature	Special topic (not in book)
	Aug. 22		
2	Aug. 27	List of active learning activities	Special topic (not in book)
	Aug. 29	How to write test questions and learning outcomes	Special topic (not in book)
3	Sept. 3	What is biology and the nature of science	Chapter 1 (1.2)
	Sept. 5	No Lecture – but we still meet in class to prepare for presentations with your group	
4	***Sept. 10***	**No Class – Prepare for presentations**	
	Sept. 12	**No Class – Prepare for presentations**	
5	Sept. 17	Defining life, chemical building blocks, water	Chapter 2
	Sept. 19	Cellular basis of life (prokaryotic vs. eukaryotic cells)	Chapter 3 (3.1 – 3.3)
6	Sept. 24	Cell membrane and transport	Chapter 3 (3.4 – 3.6)
	Sept. 26	Energy & metabolism	Chapter 4 (4.1 & 4.2)
7	Oct. 1	Photosynthesis	Chapter 5
	Oct. 3	DNA structure & function	Chapter 9 (9.1 & 9.2)
8	Oct. 8	Transcription and translation	Chapter 9 (9.3 & 9.4)
	Oct. 10	Cell division & mitosis	Chapter 6 (6.1 & 6.2)
9	Oct. 15	Meiosis and errors in meiosis	Chapter 7 (7.1 – 7.3)
	Oct. 17	Cancer	Chapter 6 (6.3)
10	***Oct. 22***	**No Class – Prepare for presentations**	
	Oct. 24	**No Class – Midterm/Prepare for presentations**	

11	Oct. 29	Inheritance Patterns	Chapter 8
	Oct. 31	**No Lecture (But there is Lab) – Enjoy your Halloween!**	
12	Nov. 5	Biotechnology	Chapter 10 (10.1 & 10.2)
	Nov. 7	Genomics (the study of entire genomes)	Chapter 10 (10.3)
13	Nov. 12	How populations evolve & mechanisms of evolution	Chapter 11 (11.0 – 11.2)
	Nov. 14	Evidence of evolution & common misconceptions about evolution	Chapter 11 (11.3 – 11.5)
14	Nov. 19	Population ecology	Chapter 19 (19.1 – 19.3)
	Nov. 21	Community ecology	Chapter 19 (19.4)
Nov. 26 & Nov. 28 - Fall Recess: No lectures or labs this week…Have a Happy Thanksgiving!			
15	Dec. 3	Ecosystem ecology	Chapter 20
	Dec. 5	Conservation and biodiversity	Chapter 21
16	***Dec. 12***	**ONLINE FINAL EXAM @ 3:40 – 5:40 PM!!!**	(date may be subjected to change)