California State University, Los Angeles
Department of Biological Sciences
BIOL 1030: Life Science, Spring 2023

Course Information

INSTRUCTOR INFORMATION

Instructor: Lisa Lugo
Contact: Email me at llugo6@calstatela.edu
Student Hours: Monday, 11:30 AM – 1:30 PM
Location: ASCL 325.
Zoom available on request: https://calstatela.zoom.us/j/83521685580
Class Days/Time: Tuesdays/Thursdays, 4:30 – 5:45 PM in room KH B2014 (lecture section 01)
Lab Day/Time: Tuesdays, 6:00 – 8:30 PM in ASCB 362 (lab section 02)
Thursdays, 6:00 – 8:30 PM in ASCB 362 (lab section 03)

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 regarding life sciences and their ability to effectively communicate 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:
There will be NO need for you to purchase a textbook for the course. ALL the material laid out on the modules are excerpts from Concepts of Biology. If you would like to access the textbook directly, it is 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 twice a week in KH B2014 for the semester. 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. 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 to download and install Adobe Acrobat Reader software on your computer.

You will need to have an up-to-date browser, operating system, and some additional software on your computer to take this class. When using Canvas, it is highly suggested to use Chrome or Firefox as this web browser will not encounter problems for illustrations. It is a known issue for Mac Safari users to encounter issues in displaying images and downloading files. In addition, you can disable cross-site tracking prevention in Safari when using Canvas to go around this problem.

Assignments and Grading Policy
Assessments are based on a detailed grading rubric developed for this course:

Grading Criteria / Points Possible:
20 points – Class Participation
30 points – Discussion Forum Posts
35 points – Team Presentation 1
60 points – Team Presentation 2
40 points – Team Presentation Outline (2 total)
40 points – Exam Question Assignments (2 total)
100 points – Weekly Quizzes (11 total; lowest score dropped)
50 points – Midterm I
50 points – Midterm II
300 points – Laboratory Activities and Assignments (Detailed in the Laboratory Syllabus)

Total Course = <u>725 points</u>

Grading Scale: You will receive a single grade for both 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

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 though I understand that things happen that are beyond our reach. For that reason, if you have an extenuating circumstance, please contact me by private message so we can discuss options.

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, send me an email. Please do not post your personal concerns in a discussion forum.

Rubrics

I will be using Rubrics in order to provide you with specific and descriptive criteria to evaluate your work. It is crucial to look at them before you submit your assignment to make sure all expectations are fulfilled.

Course Communication

Interaction with Instructor

I 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 emailed to me. As a student, you should expect to receive assignment feedback no later than a week and responses to postings within 48 hours. If for any reason I will be unavailable, I will post an announcement on Canvas to notify my absence.

Email Policy

Email me at llugo6@calstatela.edu. If I do not respond within 24 hours, please send a second email. I will only respond to emails sent from your CSULA email account. No personal email addresses.

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 emails that:

- 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 login to the course group chat for real-time conversation with peers!

Participation and Attendance
Please arrive to our 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. Thus, if you miss more than three class meetings, your final grade may be negatively affected. For any reason you do not show for the lecture meetings, activities and content will be posted on Canvas for you to access. However, if you have an extenuating circumstance, please contact me by private message so we can discuss options. I am very understanding so please do not hesitate to reach out to me.

You will talk and work frequently in small groups and present your ideas to the entire class for project assignments. 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 have to leave the meeting/room.

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 simple calculator is good for this class.

Discussion Forums
There will be 3 discussion forums for our lecture course. You will be assessed on the content, appropriateness, length, and how well the post is written (grammar and punctuation). I expect at least 2-3 thoughtful and well written paragraphs. Please look at the assignments rubric to know what is expected in terms of content and length. 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. https://blogs.onlineeducation.touro.edu/15-rules-netiquette-online-discussion-boards/

Student Hours
I will hold student hours in ASCL 325 on Mondays from 11:30 AM – 1:30 PM. Zoom meetings by request if you cannot attend an in-person meeting. I care for you, and I am here to support you with any questions you have to help you through the course.

Turnaround/Feedback
If you have a concern and email me at llugo6@calstatela.edu, you can expect a response within 24 hours during the week (M-F). If I do not respond within that time, please email me again.

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.
https://www.calstatela.edu/osd

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	Jan. 24	Introduction to lecture and lab	Lecture and Lab Syllabus
	Jan. 26	Teaching with your mouth shut	Special topic (not in book)
2	Jan. 31	List of active learning activities	Special topic (not in book); Read your assigned chapter topic
	Feb. 2	How to write test questions and learning outcomes	Special topic (not in book); Read your assigned chapter topic
3	Feb.7	What is biology and the nature of science	Chapter 1 (1.2)
	Feb. 9	No Lecture –but we still meet in class to prepare for presentations with your group	Read your assigned chapter topic
4	Feb. 14	No Lecture –but we still meet in class to prepare for presentations with your group	Read your assigned chapter topic
	Feb. 16	No Lecture –but we still meet in class to prepare for presentations with your group	Read your assigned chapter topic
5	Feb. 21	Chemical building blocks & water	Chapter 2 (2.1 & 2.2)
	Feb. 23	Biological Molecules	Chapter 2 (2.3)
6	Feb. 28	Cellular basis of life (prokaryotic vs. eukaryotic cells)	Chapter 3 (3.1 –3.3)
	Mar. 2	Cell membrane and transport	Chapter 3 (3.4 –3.6)
7	Mar. 7	Energy & metabolism	Chapter 4 (4.1 & 4.2)
	Mar. 9	Photosynthesis	Chapter 5 (5.1 – 5.3)
8	Mar. 14	DNA structure & function	Chapter 9 (9.1 & 9.2)
	Mar. 16	Transcription and translation	Chapter 9 (9.3 & 9.4)
9	Mar. 21	Cell division & mitosis	Chapter 6 (6.1 & 6.2)
	Mar. 23	Meiosis and errors in meiosis	Chapter 7 (7.1 – 7.3)
10	Mar. 28	**SPRING BREAK**	
	Mar. 30		
11	Apr. 4	No Lecture –but we still meet in class to prepare for presentations with your group	Read your assigned chapter topic

	Apr. 6	No Lecture –but we still meet in class to prepare for presentations with your group	Read your assigned chapter topic
12	Apr. 11	Cancer	Chapter 6 (6.3)
	Apr. 13	Inheritance Patterns	Chapter 8 (8.1 – 8.3)
13	Apr. 18	Biotechnology	Chapter 10 (10.1 & 10.2)
	Apr. 20	How populations evolve & mechanisms of evolution	Chapter 11 (11.0 – 11.2)
14	Apr. 25	Evidence of evolution & common misconceptions about evolution	Chapter 11 (11.3 –11.5)
	Apr. 27	Organizing Life on Earth	Chapter 12.1
15	May 02	Population ecology	Chapter 19 (19.1 –19.3)
	May 04	Community ecology	Chapter 19 (19.4)
16	May 19	Ecosystem ecology	Chapter 20 (20.1 & 20.2)
	May 11	Conservation and biodiversity	Chapter 21 (20.1 – 20.3)
17	**Finals Week**		