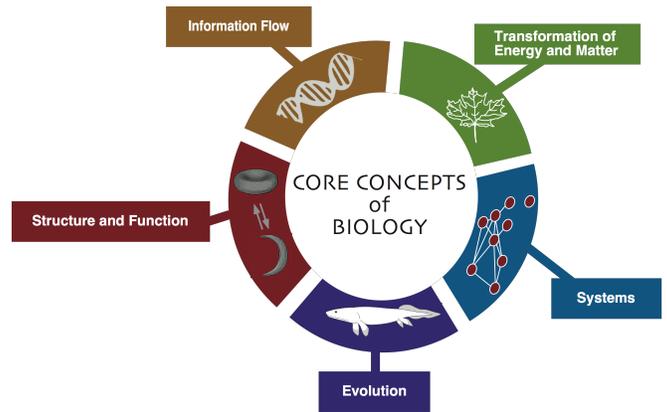


Biology 3310: Cellular and Molecular Biology

California State University, Stanislaus
Fall 2019



INSTRUCTOR:

Sarah Bissonnette, Ph.D.

Assistant Professor, Biology

Accustomed to: she/her

Email: sbissonnette@csustan.edu

Office: N264

Student Hours:

Mondays 10-11 am; Thursdays 2-3pm N264

Or e-mail me for an appointment.

COURSE CREDIT: 3.0 Units

PREREQUISITES: **CHEM 1100 AND CHEM 1110 or their equivalents**

BIOL 1050 AND BIOL1150 or their equivalents

SCHEDULE: Monday, Wednesday, Friday 9:00-9:50 am

LOCATION: Naraghi Hall 322

WEBSITE: Stan State Blackboard site for Biol 3310-001, Fall 2019

COURSE DESCRIPTION: This course is a course in cell and molecular biology required for Stan State biology majors. Course teaching strategies will engage students as a community of biologists in the classroom, where biology concepts, investigative skills, leadership skills, and language processes integral to biology learning are emphasized. An overarching goal of the course is for students to gain insight into the nature of scientific inquiry, the process by which knowledge in biology is acquired, and of the strengths and limitations of the process and the evidence obtained. To this end, students will consider experiments and data that support our current understanding of cells and how they function. Students will gain skills in working with peers as they learn to identify their confusions, ask questions, and think critically and skeptically about cell and molecular biology. Students will also have the opportunity to improve their communication skills through numerous writing assignments and in-class activities.

Course content is designed to deepen student understanding of essential functions of cells and the structures that mediate these functions. In addition, readings and discussions about current events, scientific policies, and historical documents will provide opportunities for students to apply their knowledge and explore the applications of these biological concepts and their influence on society. This course aspires to support students in developing the interests, basic content knowledge, and skills necessary to evaluate new discoveries in cell biology and to continue to deepen their knowledge of biology throughout their lives.

MATERIALS:

- REQUIRED:
 - Essential Cell Biology, Alberts et al. ANY edition. Page numbers will be assigned from the third edition:
 - <https://www.amazon.com/Essential-Cell-Biology-Bruce-Alberts/dp/0815341296>
 - One pack of 3x5 index cards (~100, any style) – bring a few to every lecture
 - Your own iClicker (available at the Stan State Bookstore)
 - Web/E-mail access

CLASS CULTURE: Biology 3310 is a community of biologists trying to increase their understanding of the biological world. The classroom culture is designed to engage you in thinking like a biologist. This means cooperative learning and problem solving will be emphasized. Often, we will seek to understand complex topics by analyzing “case studies,” which may include reading scientific articles or discussing real-world dilemmas.

Students Should:

- Attend and actively participate as a member of the Biology 3310 community.
- In all situations display respect, tolerance, and patience when interacting with colleagues.
- Be open to learning in many different ways and trying new learning and study strategies.
- Approach me for help early and often, and provide me with feedback.
- Seek out additional information through resources like Wikipedia, YouTube, etc.
- Use text and other readings to clarify information and extend knowledge.
- Take responsibility for your own learning by staying attentive and organized.
- Not use portable electronic devices in class.
- Not use computers for non-class related activities during lecture (Facebook, etc.)

GRADING: This course is designed *to promote your learning* and is customized in many ways for that purpose. I use the graded assignments and exams outlined below specifically to facilitate your understanding of biology from many different viewpoints and using many different teaching styles. In addition, these assignments (particularly in-class lecture activities and Blackboard assignments) give me highly valuable information throughout the term, allowing me to adjust the course to meet your educational needs.

Your grade will be earned through the following:

Points	Description
300	Quizzes (4x 100 points, lowest one dropped)
100	In-class practice problems (10x 10 points)
50	Homework (5x 10 points)
50	iClicker 2 points per class (once you hit 50 points, everything above that will be extra credit)
150	Final Exam
650	Total

Grade assignments will be based on the percentage of total points earned. I as the instructor do not decide your grade, but rather you as a student do the work to earn your grade.

%	GRADE	GRADE POINTS
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0
60-62	D-	0.7
0-59	F	0

EXTRA CREDIT: Extra credit is available: 5 points for meeting with me one-on-one OR for attending an exam review session. Additionally, extra credit questions are offered on each exam that can make up for exam points missed.

LATE ASSIGNMENTS: Homework will be due at 9:00 am on the day it's due, either in class or online depending on the assignment. Assignments turned in after 9:00 am will lose 1 point per day, including the day that they're due (ie, assignments turned in at 10am on Tuesday can receive a maximum score of 9/10).

ATTENDANCE: Attendance of lecture sessions is essential for success in this course. Lectures often include in-class activities and discussions of the material in ways not emphasized in suggested and required readings. In addition, questions and problems practiced in lecture sessions will appear on quizzes. Positive attendance means being present at the start of class (9:00 am sharp!) and remaining present throughout class (9:50 am). Attendance will be monitored through responses to iClicker questions. You are responsible for responding to iClicker questions yourself, and you may NOT respond for any of your colleagues.

LECTURE ACTIVITIES: Participation in lecture sessions means not just being physically present, but being mentally and intellectually present as well. **Your voice matters** in large and small group discussions, and I will provide you with numerous opportunities to share your ideas. One way I will hold you accountable for lecture participation is through the use of index cards. At the beginning, middle, or end of lecture, I will present you with a question or statement that challenges your scientific and/or personal viewpoints. In addition, I will be doing several case studies in class that will require you to work with others to identify your questions about a biological problem, go find information about the case outside of class as a homework assignment, and share what you've learned with others during a following class. I hope that these in-class activities a) allow you a chance to think through your ideas, b) take the pressure off the formal testing process by accounting for a portion of your grade, and c) provide me with an idea of your understanding of the concepts we cover in class. *If you are absent for an index card or other in-class activities, you may not make them up.*

HOMEWORK: For you to turn knowledge into something you can use, it is important to reflect on what you know and what issues are still confusing to you. Periodically you will be required to submit a Homework assignment to me via Blackboard (see schedule for due dates) or in person. I will provide prompts for you to write about or respond to. Grades will be assigned for turning these journals in on time, and following the instructions. The point of these assignments is to give you practice reading paper, researching topics, and writing about science thoughtfully. Each assignment will also deal with a topic that we will be talking about in class, so I want you to have thought about the topic before you get to class. Students who have taken the course before must submit brand new work. You may not submit all or parts of a homework assignment that you have previously submitted.

iCLICKERS: iClickers will be used to allow both you and me as the instructor to understand how our community is thinking about a biological topic. You will receive points for participating in iClicker questions given during class, but I will not grade you on the correctness of your answer because I want you to be honest about how you are thinking. ***Under no circumstances can you operate anyone else's iClicker.*** Any instance of one student responding for another student will be considered and handled as a cheating incident. Either the iClicker + or 2 is fine.

QUIZZES: There are four quizzes throughout the semester. The quizzes will include a variety of question styles that require you to recall, evaluate, apply, and reflect on what you learned. These quizzes cover concepts discussed in lecture, in-class activities, and homework assignments. Questions, problems, and discussion/reflection prompts from class will appear as quiz questions. I will supply a study guide in advance of these quizzes. Since your lowest quiz score will be dropped, there will be no make-up quizzes.

FINAL EXAM: The final exam will be worth 150 points.

COMPUTERS: This is an electronically supported course. You must have easy access to a computer and the internet in order to be successful in this course. A list of computer labs on campus can be found at: <https://www.csustan.edu/oit/computer-labs>.

STATEMENT ON PLAGIARISM AND CHEATING: Students are expected to maintain academic integrity in all work pursued at Stanislaus State University. Cheating on tests may, at the discretion of the instructor, result in the automatic disqualification of the test and the student receiving zero points for that test. Cell phone use (text messaging included) during a test for *any* reason (personal or otherwise) is considered cheating. Plagiarism, defined as either ***1) direct copying or loose paraphrasing of text from a published work or from an online source without appropriate referencing, or 2) use of another student's work or ideas without appropriate attribution***, will result in zero points earned for that assignment.

DEPARTMENTAL AND UNIVERSITY DEADLINES:

September 19th, 2019 – Last day to drop classes without transcript notation.

Class Topic Sequence

This topic sequence is approximate and may change. Additional reading and homework assignments will be given out in class.

Week #	Topics
1	Introduction to the class, Parts of a cell, endosymbiosis,
2	Chemistry, functional groups, hydrophobic effect, bonds, 2nd law of thermodynamics, amino acids, protein folding
3	protein purification in vitro, protein production and folding in vivo
4	Protein function and membranes
5	Protein Localization and Secretion
6	Transport across cell membranes
7	Action Potentials, Learning, Drugs and the Brain
8	Cell Signaling
9	Cytoskeleton
10	Chemotaxis
11	The cell cycle
12	Metabolism
13	Cancer
14	Cancer and Chemotherapy
15	Review

List of Assignment Due Dates

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F, 8/23 Class 1		F, 10/18 Class 24	In-Class Practice Problems-6
M, 8/26 Class 2		M, 10/21 Class 25	
W, 8/28 Class 3		W, 10/23 Class 26	Quiz 3
F, 8/30 Class 4	In-Class Practice Problems-1	F, 10/25 Class 27	
M, 9/2	Labor Day	M, 10/28 Class 28	
W, 9/4 Class 5	Homework-1 Due	W, 10/30 Class 29	
F, 9/6 Class 6	In-Class Practice Problems-2	F, 11/1 Class 30	In-Class Practice Problems-7
M, 9/9 Class 7		M, 11/4 Class 31	
W, 9/11 Class 8	Quiz 1	W, 11/6 Class 32	
F, 9/13 Class 9		F, 11/8 Class 33	In-Class Practice Problems-8
M, 9/16 Class 10		M, 11/11 No Class	Veteran's Day
W, 9/18 Class 11		W, 11/13 Class 34	
F, 9/20 Class 12	In-Class Practice Problems-3	F, 11/15 Class 35	Quiz 4
M, 9/23 Class 13		M, 11/18 Class 36	
W, 9/25 Class 14		W, 11/20 Class 37	
F, 9/27 Class 15	In-Class Practice Problems-4	F, 11/22 Class 38	In-Class Practice Problems-9
M, 9/30 Class 16		M, 11/25 Class 39	
W, 10/2 Class 17	Quiz 2	W, 11/27 Class 40	
F, 10/4 Class 18		F, 11/29	Thanksgiving Break
M, 10/7 Class 19		M, 12/2 Class 41	
W, 10/9 Class 20		W, 12/4 Class 42	
F, 10/11 Class 21	In-Class Practice Problems-5	F, 12/6 Class 43	In-Class Practice Problems-10
M, 10/14 Class 22		M, 12/9 Class 44	
W, 10/16 Class 23		M, 12/16 8:30am-	Final Exam, cumulative