San José State University
Chemistry Department
Chem 135, General Biochemistry, Fall 2021

Course and Contact Information

Instructor:	Dr. Daryl Eggers
Office Location:	DH 604
Telephone:	408-924-4960
Email:	daryl.eggers@sjsu.edu (*preferred means of contact*)
Office Hours:	F 11:00-12:00 via Zoom, and for 20 minutes after each live lecture
Class Days/Time:	M/W, 4:30-6:10 pm (most Wed lectures are asynchronous)
Classroom:	online
Prerequisites:	**Biol 30** and **Chem 112B** w/ grade of "C" or better (Non-biology majors excused from Biol 30 prereq)

eCampus Course Page

Online lectures and course materials including videos, pdf files, quizzes and exam assignments must be accessed through the Canvas Learning Management System course login website at *http://sjsu.instructure.com*. The Powerpoint slides used in lecture will be posted prior to the corresponding class meeting as a pdf file in three formats (1, 3, or 6 slides per page) such that students may print or view them while taking notes during the lecture. Other student resources related to online learning and technology may be found on the Learn Anywhere webpage: https://www.sjsu.edu/learnanywhere/.

Course Description

Chem 135 is a 1-semester, 4-unit biochemistry survey course that introduces most of the same material, though less in depth, as that covered in the 2-semester sequence for biochemistry majors (Chem 130A and 130B). Specific topics include structure/function of biological molecules – such as amino acids, proteins, lipids, and carbohydrates – in addition to enzyme kinetics, enzyme mechanism, and the reactions of the central metabolic pathways. Both synchronous (live Zoom) and asynchronous (recordings) will be utilized. All live Zoom lectures will also be recorded for later viewing.

Course Learning Outcomes

Upon successful completion of this course, students will understand the different levels of protein structure; appreciate the role of water in protein folding; be able to utilize the equations governing enzyme kinetics; recognize the structure of key enzyme cofactors, including several

vitamins; know the order of metabolic intermediates and the corresponding enzyme names for the central metabolic pathways; be able to calculate the theoretical number of ATP molecules generated from a given nutrient.

Required Textbook

"*Principles of Biochemistry*," fifth edition, by Moran, Horton, Scrimgeour, and Perry; Pearson Education, San Francisco, 2012. [ISBN: 978-0-321-70733-8] Note: most of the Powerpoint slides used in lecture will correspond to figures and tables in this textbook. The 4th edition of this text is acceptable, but some of the figures and class content will not correspond exactly.

Calculator

A non-programmable calculator is allowed and necessary for solving some problems during the exams (need scientific notation and log/10^x functions for buffer problems). This is a science class!

Web Camera

The midterm and final exams will require the use of LockDown Browser and Respondus Monitor. This means that all students must have a webcam to take the exams, either built into the computer or connected via USB. Respondus is not compatible with Chromebooks. iPads are compatible but often problematic. The system requirements for Respondus are:

Windows: 10, 8, 7

Mac: MacOS 10.12 or higher

iOS: 11.0+ (iPad only)

Note that PC laptops and tablets may be checked out for the entire semester from Information Technology services.

Time Commitment

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12- 3.pdf.

Grading Information

Four exams and 10 quizzes are scheduled during the semester (see below). The final exam is comprehensive in content, covering the entire semester. The final exam score may replace the lowest midterm (or the quiz total if lower than all midterms) when the final exam score is higher. There are no assigned homework problems, but students are urged to work as many problems as

possible; practice problems may be found at the end of each chapter, posted in Canvas by the instructor (test bank), and within the online resources that come free with a new textbook.

Midterms (3)	300
Quizzes (10)	100
Final Exam	100
Total Points	500

Letter grades will follow a traditional curve, the top 3% earning a plus grade and the bottom 3% earning a minus grade within each decade: 93.0-100% (A), 90.0-92.9% (A-), 87.0-89.9% (B+), 83.0-86.9% (B), 80.0-82.9% (B-), etc. The instructor reserves the right to lower the grading curve at the end of the semester if he deems it to be appropriate. *A large amount of cumulative material is covered in this course. It is imperative that each student stay up to date, read, and re-read the sections of the text on which the class lectures are based.*

Note on Quizzes

The quizzes have been inserted in the schedule to motivate students to stay up to date with the class material. Typically, quizzes are posted on a Wednesday and must be completed by the following Sunday at midnight. Each 10-pt quiz will cover material from the last two most recent lectures. Quizzes may be taken with notes and textbook open, but no quiz may be taken with the help of other individuals from the class or elsewhere. As with the exams, quiz questions and answers cannot be shared with others (see Statement Regarding Online Cheating below). The answers to quiz questions are released in Canvas on the Monday following the deadline; there are no make-up quizzes.

Note on Midterm and Final Examinations

The midterm and final exams will be taken online on the dates and times given at the end of this syllabus. THERE ARE NO MAKE-UP EXAMS. If you know in advance that you have an excusable time conflict, let the instructor know as soon as possible. If you are registered with the AEC office and have been approved for extra accommodations, let the instructor know at the start of the semester, long before the first midterm. If you miss a midterm exam due to illness or other unforeseen circumstance, please let the instructor know your situation when you are first able. In the case of a missed exam, a zero will be entered in the gradebook but your final exam score will replace the zero as it now represents your lowest midterm score.

Exams are closed to notes and other resources. Lockdown Browser and Respondus Monitor are required for taking the midterm and final exams. No secondary computers, smart phones, tablets, or online resources are allowed during the midterm and final exams. Suspected cheating from Respondus Monitor reports will be shared with SJSU officials.

Statement Regarding Online Cheating

Any form of cheating is a serious violation of SJSU's Academic Integrity Policy. A student caught cheating on an exam will receive a zero score and may be subject to further administrative sanctions, including probation, suspension, or expulsion. Chegg and other "solution" websites are strictly prohibited during an exam. In a previous semester, several chemistry students were caught cheating in this manner; please inform the instructor if you are aware of any cheating by classmates.

University Policies

Per University Policy S16-9 *(http://www.sjsu.edu/senate/docs/S16-9.pdf)*, relevant information to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/. Make sure to visit this page, review and be familiar with these university policies and resources.

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Course Schedule (*check Canvas for updates and pdf files*)

Lec	Date	Chp	Topics/Activity
-	Aug 19	-	Semester Begins
1	Aug 23	1/2	Intro/Water/Weak Acids
2	Aug 25	2/3	Buffers & Amino Acids & Peptides **Quiz 1**
3	Aug 30	3	Protein Purification and Sequencing
4	Sep 01	4	3-Dimensional Protein Structure **Video – Quiz 2**
-	Sep 06	-	**Holiday – Labor Day**
5	Sep 08	4	O_2-Binding to Mb & Hb; Protein Folding & Stability
6	Sep 13	4	Protein Folding & Stability II
-	Sep 15	-	**Midterm I** (Chps 1-4)
7	Sep 20	5	Enzyme Kinetics
8	Sep 22	5	Enzyme Kinetics II **Video – Quiz 3**
9	Sep 27	5	Enzyme Inhibition
10	Sep 29	6	Enzyme Mechanisms **Video – Quiz 4**
11	Oct 04	8	Carbohydrates
12	Oct 06	9	Lipids & Membranes **Video – Quiz 5**
13	Oct 11	10	Intro to Metabolism
-	Oct 13	-	**Midterm II** (Chps 5-6, 8-9)
14	Oct 18	11	Glycolysis
15	Oct 20	11/12	Regulation of Glycolysis & Gluconeogenesis **Video – Quiz 6**
16	Oct 25	12	Pentose Phosphate Pathway & Glycogen Metabolism
17	Oct 27	13	Citric Acid Cycle **Video – Quiz 7**
18	Nov 01	14	Electron Transport Chain
19	Nov 03	14	ATP Synthase & BioAccounting **Video – Quiz 8**
20	Nov 08	15	Photosynthesis
-	Nov 10	-	**Midterm III** (Chps 10-14)
21	Nov 15	16	Fatty Acid & Cholesterol Biosynthesis
22	Nov 17	16	β-Oxidation and Ketone Bodies **Video – Quiz 9**
23	Nov 22	-	Science Advocacy Day
-	Nov 24	-	**Holiday – (Pre)Thanksgiving**
24	Nov 29	17	Amino Acid Biosynthesis
25	Dec 01	17	AA Degradation & Urea Cycle **Video – Quiz 10**
26	Dec 06	1-17	Review
Final	Dec 10	-	**Final Exam** 2:45 - 5:00 pm (Chps 1-17)