San José State University
Chemistry Department
Chem 135, General Biochemistry, Spring 2022

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 lecture
Class Days/Time:	M/W, 4:30-6:10 pm
Classroom:	Online thru Feb 11, then SCI 142
Prerequisites:	**Biol 30** and **Chem 112B** w/ grade of "C" or better (No exceptions; non-biology majors excused from Biol 30 prereq)

eCampus Course Page

Online lectures and course materials including video recordings, pdf files, and quizzes 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.

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 required 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

Should COVID-19 precautions force online instruction beyond Feb 14, the midterms and final exams will take place in Canvas and will require the use of LockDown Browser and Respondus Monitor. This means that all students must have a webcam to take the online exams, either built into the computer or connected via USB. A Respondus guide with system requirements may be found on the Proctoring page of SJSU's Learn Anywhere site. Note that PC laptops and tablets may be checked out for the entire semester from Information Technology services or from Student Computing Services in MLK Library.

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 with a time limit and must be completed in Canvas 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. Quiz questions and answers cannot be shared with others (see Statement Regarding Cheating below).

Note on Midterm and Final Examinations

The midterm and final exams will be taken 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.

Exams are closed to notes and other resources. No secondary computers, smart phones, tablets, or online resources are allowed during the midterm and final exams.

Statement Regarding 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.

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
1	Jan 26	1/2	Intro/Water (online)
2	Jan 31	2	Weak Acids & Buffers (online)
3	Feb 02	3	Amino Acids & Peptides (online) **Quiz 1**
4	Feb 07	3	Protein Purification & Sequencing (online)
5	Feb 09	4	3D Protein Structures (online) **Quiz 2**
			♥ *in-person classes begin Feb 14* ♥ answer **Bonus Quiz**
6	Feb 14	4	O_2-binding to Globins; Protein Folding & Stability
7	Feb 16	4	Protein Folding & Stability II
8	Feb 21	-	Science Advocacy Day (*pre-recorded*)
-	Feb 23	-	**Midterm I** (Chps 1-4)
9	Feb 28	5	Enzyme Kinetics
10	Mar 02	5	Enzyme Kinetics II **Quiz 3**
11	Mar 07	5	Enzyme Inhibition
12	Mar 09	6	Enzyme Mechanisms **Quiz 4**
13	Mar 14	8	Carbohydrates
14	Mar 16	9	Lipids & Membranes **Quiz 5**
15	Mar 21	10	Intro to Metabolism
-	Mar 23	-	**Midterm II** (Chps 5-6, 8-9)
-	Mar 28/30	-	**Spring Break**
16	Apr 04	11	Glycolysis and its Regulation
17	Apr 06	12	Gluconeogenesis & Pentose Phosphate Pathway **Quiz 6**
18	Apr 11	12	Glycogen Metabolism
19	Apr 13	13	Citric Acid Cycle **Quiz 7**
20	Apr 18	14	Electron Transport Chain
21	Apr 20	14	ATP Synthase & BioAccounting **Quiz 8**
22	Apr 25	15	Photosynthesis
-	Apr 27	-	**Midterm III** (Chps 10-14)
23	May 02	16	Fatty Acid & Cholesterol Biosynthesis
24	May 04	16	β-Oxidation and Ketone Bodies **Quiz 9**
25	May 09	17	Amino Acid Biosynthesis
26	May 11	17	AA Degradation & Urea Cycle **Quiz 10**
27	May 16	1-17	Review
Final	May 23	-	**Final Exam** 2:45 - 5:00 pm (Chps 1-17)