

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

Course and Contact Information

Instructor:	Dr. Daryl Eggers
Office Location:	DH 604
Telephone:	408-924-4960
Email:	daryl.eggers@sjsu.edu (<i>preferred means of contact</i>)
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 (most Wed lectures are asynchronous)
Classroom:	SCI 164
Prerequisites:	Biol 30 and Chem 112B w/ grade of “C” or better (Non-biology majors excused from Biol 30 prereq)

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.

eCampus Course Page and Messaging

Course materials including pdf files, quizzes, and exam assignments must be accessed through the [Canvas Learning Management System](http://sjsu.instructure.com) 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. You are responsible for regularly checking for announcements in Canvas and for checking the messaging system through [MySJSU](#) on [Spartan App Portal](#). Other student resources related to online learning and technology may be found on the [Learn Anywhere](https://www.sjsu.edu/learnanywhere/) webpage: <https://www.sjsu.edu/learnanywhere/>.

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.

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 cause us to return to a lockdown situation, midterm and final exams will require the use of LockDown Browser and Respondus Monitor. This means that all students would need a webcam to take the 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
<u>Final Exam</u>	<u>100</u>
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. *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. 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. You must take the final exam to pass the course.

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. The instructor reserves the right to designate student seating assignments for each exam.

University Policies

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<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](http://www.sjsu.edu/gup/syllabusinfo/) 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 22	1/2	Intro/Water/Weak Acids
2	Aug 24	2/3	Buffers & Amino Acids & Peptides Quiz 1
3	Aug 29	3	Protein Purification and Sequencing
4	Aug 31	4	3-Dimensional Protein Structure Quiz 2
-	Sep 05	-	Holiday – Labor Day
5	Sep 07	4	O ₂ -Binding to Mb & Hb; Protein Folding & Stability
6	Sep 12	4	Protein Folding & Stability II
-	Sep 14	-	Midterm I (Chps 1-4)
7	Sep 19	5	Enzyme Kinetics
8	Sep 21	5	Enzyme Kinetics II Quiz 3
9	Sep 26	5	Enzyme Inhibition
10	Sep 28	6	Enzyme Mechanisms Quiz 4
11	Oct 03	8	Carbohydrates
12	Oct 05	9	Lipids & Membranes Quiz 5
13	Oct 10	10	Intro to Metabolism
-	Oct 12	-	Midterm II (Chps 5-6, 8-9)
14	Oct 17	11	Glycolysis and its Regulation
15	Oct 19	12	Gluconeogenesis & Pentose Phosphate Path Quiz 6
16	Oct 24	12	Glycogen Metabolism
17	Oct 26	13	Citric Acid Cycle Quiz 7
18	Oct 31	14	Electron Transport Chain
19	Nov 02	14	ATP Synthase & BioAccounting Quiz 8
20	Nov 07	15	Photosynthesis
-	Nov 09	-	Midterm III (Chps 10-14)
21	Nov 14	16	Fatty Acid & Cholesterol Biosynthesis
22	Nov 16	16	β -Oxidation and Ketone Bodies Quiz 9
23	Nov 21	-	Science Advocacy Day
-	Nov 23	-	Holiday – (Pre)Thanksgiving
24	Nov 28	17	Amino Acid Biosynthesis
25	Nov 30	17	AA Degradation & Urea Cycle Quiz 10
26	Dec 05	1-17	Review
Final	Dec 14	-	Final Exam 2:45 - 5:00 pm (Chps 1-17)