

**San José State University**  
**Chemistry Department**  
**Chem 135, General Biochemistry, Fall 2019**

**Course and Contact Information**

<b>Instructor:</b>	Dr. Daryl Eggers
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<b>Office Hours:</b>	Th 10:00-11:00; M/W after class (6:10-6:45 pm)
<b>Class Days/Time:</b>	M/W, 4:30-6:10 pm
<b>Classroom:</b>	SCI 164
<b>Prerequisites:</b>	<b>Biol 30</b> and <b>Chem 112B</b> w/ grade of “C” or better (Non-biology majors excused from Biol 30 prereq)

**eCampus Course Page**

Course materials such as pdf articles, lecture notes, and updates to course syllabus may 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 just prior to the corresponding class meeting such that students may print or view them while taking notes in class.

**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. Other major topics include enzyme kinetics, enzyme mechanism, and the reactions and regulation 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 4<sup>th</sup> edition of this text is acceptable, but some of the figures and class content will not correspond exactly.

## Course Requirements

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.

## Midterm and Final Examinations

The midterm and final exams will be taken in class. THERE ARE NO MAKE-UP EXAMS. The final exam must be taken to pass the course. 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. No one may leave the room during an exam (except for unforeseen emergency). No one may look at their phone or answer a call/text during an exam. Each student should bring a non-programmable scientific calculator for the exams; sharing of calculators is prohibited during an exam. If you suspect that someone is copying off of you during an exam, please ask the instructor to be moved to a different seat immediately. The instructor may give specific seat assignments and/or change to a larger classroom on the dates of the exams.

## Grading Information

Three midterm exams are scheduled during the semester (100 pts each). Grades are based on the midterm scores and a comprehensive final exam (200 pts). The final exam may also replace one midterm score if the percentage correct on the final is higher than the lowest midterm (in which case, the final exam score will be multiplied by 1.5). 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, and within the online resources that come free with a new textbook ([www.chemplace.com](http://www.chemplace.com), access code under silver strip in front of book). *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.* Please do not be afraid to visit the instructor during office hours if you are having trouble with any of the concepts covered in lecture.

Midterms (3)	300
<u>Final Exam</u>	<u>200</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. The instructor reserves the right to lower the grading curve at the end of the semester if he deems it to be appropriate.

## **Classroom Protocol**

We hope that the classroom and laboratory will serve as an environment that will promote learning and the development of new ideas, as well as be a safe and respectful community. Behavior that interferes with the normal academic function in a classroom or lab is unacceptable. Students exhibiting this behavior will be asked to leave the class. Examples of such behavior include the following:

- a) Persistent interruptions or using disrespectful adjectives in response to the comments of others.
- b) The use of obscene or profane language.
- c) Yelling at classmates and/or faculty.
- d) Persistent and disruptive late arrival to or early departure from class without permission.
- e) Physical threats, harassing/bullying behavior, or personal insults (even when stated in a joking manner).
- f) Use of personal electronic devices such as pagers, cell phones, PDAs in class, unless it is part of the instructional activity.

## **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
1	Aug 21	1/2	Intro/Water
2	Aug 26	2	Weak Acids & Buffers
3	Aug 28	3	Amino Acids & Peptides
-	Sep 02	-	<b>Holiday – Labor Day</b>
4	Sep 04	3	Protein Purification and Sequencing
5	Sep 09	4	3-Dimensional Protein Structure
6	Sep 11	4	O <sub>2</sub> -Binding to Mb & Hb; Protein Folding & Stability
7	Sep 16	4	Protein Folding & Stability II
-	Sep 18	-	<b>Midterm I</b> (Chps 1-4)
8	Sep 23	5	Enzyme Kinetics
9	Sep 25	5	Enzyme Kinetics II
10	Sep 30	5	Enzyme Inhibition
11	Oct 02	6	Enzyme Mechanisms
12	Oct 07	8	Carbohydrates
13	Oct 09	9	Lipids & Membranes
14	Oct 14	10	Intro to Metabolism
-	Oct 16	-	<b>Midterm II</b> (Chps 5-6, 8-9)
15	Oct 21	11	Glycolysis
16	Oct 23	11/12	Regulation of Glycolysis & Gluconeogenesis
17	Oct 28	12	Pentose Phosphate Pathway & Glycogen Metabolism
18	Oct 30	13	Citric Acid Cycle
19	Nov 04	14	Electron Transport Chain
20	Nov 06	14	ATP Synthase & BioAccounting
-	Nov 11	-	<b>Holiday – Veterans Day</b>
-	Nov 13	-	<b>Midterm III</b> (Chps 10-14)
21	Nov 18	15	Photosynthesis
22	Nov 20	16	Fatty Acid & Cholesterol Biosynthesis
23	Nov 25	16	$\beta$ -Oxidation and Ketone Bodies
-	Nov 27	-	<b>Holiday – (Pre)Thanksgiving</b>
24	Dec 02	17	Amino Acid Biosynthesis
25	Dec 04	17	AA Degradation & Urea Cycle
26	Dec 09	1-17	Review
Final	Dec 16	-	<b>Final Exam</b> 2:45 - 5:00 pm (Chps 1-17)