

# General Biochemistry Section 01

## CHEM 135

Spring 2023 4 Unit(s) 01/25/2023 to 05/15/2023 Modified 01/17/2023

**Class Days/Time:** Monday and Wednesday 4:30 to 6:10 am

**Classroom:** Science Building 142

*Class Canvas page:* <https://sjsu.instructure.com/courses/1559943>

## Contact Information

**Instructor:** Dr. Sonia M. Cuellar-Ortiz (Dr. Cuellar) She/Her

**Office Location:** Duncan Hall 605

**Telephone:** 408 924 3808 (no voicemail)

**Email:** [sonia.cuellar-ortiz@sjsu.edu](mailto:sonia.cuellar-ortiz@sjsu.edu)

*Preferred contact method is emailing me through Canvas, I will respond within 24 business hours. Please do not expect an answer at night, on weekends or holidays.*

Canvas Announcements will be used to communicate with the class. Please be sure you get those timely

**In case of any campus contingency information to continue the class will be published in Canvas Announcements**

### Office hours:

Office Hours: Mondays 3 to 4 pm, Tuesdays and Thursdays 2 to 2:45pm.

*Office hours can be attended by showing up in my office (DH 605), by phone 408 924 2808 or online in zoom. Students must let me know they plan to attend online so I open the zoom session*

## Course Description and Requisites

Survey course on structure/function of biological molecules such as amino acids, proteins including enzymes, lipids/membranes, carbohydrates, and nucleic. Course topics include intermediary metabolism, regulation, and molecular biology.

**Prerequisite:** BIOL 30, CHEM 112A, CHEM 112B (with a grade of "C" or better; "C-" not accepted).

**Note:** CHEM 135 and CHEM 130A cannot both be applied toward a chemistry major or a chemistry minor.

Letter Graded

## \* Classroom Protocols

At SJSU, we hope that the classroom 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 lab is unacceptable. Students exhibiting this behavior will be asked to leave the class.

Examples of such behavior include

- 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 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

## Course Learning Outcomes (CLOs)

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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; recognize the structure of common carbohydrates and lipids; 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.

## Course Materials

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### Principles of Biochemistry

**Author:** Moran, Horton, Scrimgeour, and Perry

**Publisher:** Pearson Education San Francisco, 2012

**Edition:** 5th edition

**ISBN:** ISBN-13: 9780321707338

ebook version available ISBN-13: 9780137522866

The 4<sup>th</sup> edition of this text is acceptable, but some of the figures and class content will not correspond exactly

Multiple option to buy used copies of the textbook can be find online and prices vary between \$15 and \$30

### Calculator

A non-programmable calculator is required for solving some problems during class, quizzes and exams (need scientific notation and  $\log/10^x$  functions for buffer problems).

Cellphones or other smart devises will not be allowed to use as calculator during exams

### iClicker

Students will participate in class by using the student response system iClickers. An iClicker account and the app is required.

**Price:** Free for SJSU students

If you don't have a iClicker account in this link you can find instructions to create one

(<https://www.sjsu.edu/ecampus/docs/iClicker%20Account%20-%20Setup%20Guide%20-%20Student.pdf>)

Once you have your iClicker account find the course *Chem 135 Dr Cuellar Spring 2023* and join it.

In this link you will find instructions to join the iClicker course (<https://www.sjsu.edu/ecampus/docs/iClicker%20-%20Add%20Your%20Course%20-%20Setup%20Guide%20-%20Student.pdf>)

## Course Requirements and Assignments

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### Technology requirements

Students need reliable access to a computer and to internet to consult course materials, assignment and other resources

# Assignments

Graded work will include a total of eight quizzes (lowest two of 10 quizzes will be dropped), three midterm exams, participation in class activities using iclickers, and the Final exam which all contribute to the course learning outcomes.

Due dates for assignments are in the Course Schedule below and on Canvas. Additional homework problems from the text will be suggested, but not graded. It is assumed that students will do all suggested homework. Working the homework problems is an excellent way to prepare for exams and quizzes. Work in the course will be weighted as shown below:

## ✓ Grading Information

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### Quizzes

There are 10 quizzes over the semester (one for each module). The two lower score quizzes will be dropped. Typically, quizzes are posted on a Wednesday with a time limit and must be completed in Canvas by the following Sunday night. 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 other students (see Statement Regarding Cheating below).

### Midterm and Final Examinations

There will be three non cumulative midterm exams and a Final comprehensive exam. The final exam score may replace the lowest midterm when the final exam score is higher.

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.

### In class activities

Students will participate in class discussions and answer questions using a classroom engagement tool (it may be iClickers or Poll Everywhere I'll let you know in the first week of class). In class work will be graded for completeness (one clicker point for answering the questions) and correctness (0.1 clicker point for each question answered correctly). The final count of possible clicker points will be prorated to 50 course point at the end of the semester.

### 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.

### Grade breakdown

Assignments	points	Percentage
in class activities (20)	50	10%
Quizzes (8)	80	16%
Midterm Exams (3)	300	60%

Final Exam	100	20%
Total	500	106%

## Determination of Grades

The final course grade will be determined by rounding your final score to three significant figures and assigning grades as follows:

Grade	Percentage	Grade	Percentage	Grade	Percentage	Grade	Percentage
<i>A plus</i>	97.0 to 100%	<i>B plus</i>	87.0 to 89.9 %	<i>C plus</i>	77.0 to 79.9%	<i>D plus</i>	67.0 to 69.0%
<i>A</i>	93.0 to 96.9%	<i>B</i>	83.0 to 86.9%	<i>C</i>	73.0 to 76.9%	<i>D</i>	63.0 to 66.9%
<i>A minus</i>	90.0 to 92.9%	<i>B minus</i>	80.0 to 82.9%	<i>C minus</i>	70.0 to 72.9%	<i>D minus</i>	60.0 to 62.9%

## 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 university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on [Syllabus Information web page](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>). Make sure to visit this page to review and be aware of these university policies and resources.

## Course Schedule

This schedule may have changes. Changes will be announced in class and in Canvas

Date	Module	Class Topics	Chapter	
1/25	1	Intro to CHEM 135 Water	1, 2	
1/30	1	Weak Acids & Buffers	2	
2/1	1	Amino Acids & Peptides	3	Quiz 1
2/6	2	Protein Purification & Sequencing	3	
2/8	2	3D Protein Structures	4	Quiz 2
2/13	3	Protein Folding & Stability	4	
2/15	3	Protein Folding & Stability	4	Quiz 3
2/20		Exam 1		Exam 1

2/22	4	Enzyme Kinetics	5	
2/27	4	Enzyme Kinetics	5	
3/1	4	Enzyme Mechanisms	6	Quiz 4
3/6	5	Cofactors and vit	7	
3/8	5	Carbohydrates	8	Quiz 5
3/13	6	Lipids	9	
3/15	6	Membranes and transport	9	Quiz 6
3/20		Exam 2		Exam 2
3/22	7	Intro to metabolism	10	
		<i>Spring break</i>		
4/3	7	Glycolysis and its Regulation	11	
4/5	7	Gluconeogenesis & Pentose Phosphate Pathway	12	Quiz 7
4/10	8	Glycogen Metabolism	12	
4/12	8	Citric Acid Cycle	13	Quiz 8
4/17	9	Electron Transport Chain	14	
4/19	9	ATP Synthase & BioAccounting	14	Quiz 9
4/24	10	Photosynthesis	15	Quiz 10
4/26		Exam 3		Exam 3
5/1	11	Fatty Acid & Cholesterol Biosynthesis	16	
5/3	11	$\beta$ -Oxidation and Ketone Bodies	16	Quiz 11
5/8	12	Amino Acid Biosynthesis	17	
5/10	12	AA Degradation & Urea Cycle	17	Quiz 12
5/15		Review		

5/17		Final exam May 17 2:45-5:00 PM Science 142		
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