San José State University
Chemistry Department, College of Science
Chem 08, Organic Chemistry, Spring 2023

Course and Contact Information

Instructor:	Laura Kapitzky, PhD
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Office Hours:	Tuesdays 1:30 PM – 2:30 PM and by appointment
Class Days/Time:	Tuesdays and Thursdays 9:00 AM - 10:15 AM
Classroom:	Duncan Hall (DH) Room 351
Prerequisites:	CHEM 001B (with a grade of "C" or better; "C-" not accepted). Notes: CHEM 008 is not a satisfactory prerequisite for CHEM 112B. No credit toward Chemistry major or minor. CHEM 9 lab is not a co-requisite but can be taken concurrently with CHEM 8.

Course Format

- Chem 8 is an in-person course with a significant online presence.
    - **Video lectures, readings, quizzes, practice problems, worksheets** and all other learning materials will be available on Canvas.
    - **In-person Tuesday/Thursday class meetings** will be a combination of lecture and working of practice problems relevant to that week's module. You are expected to have access to an electronic device with wifi capability to access Canvas during class (a phone will suffice but a larger screen will make it easier to view documents). You are strongly encouraged to view the module's video lectures before each class meeting.

Canvas and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Learning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking the messaging service on Canvas to learn of any updates. I will frequently post announcements to our course website on Canvas – be sure to adjust your Canvas notification settings so that you receive announcements directly in your email or Canvas Inbox as you prefer.

Course Description

Introduction to the chemistry of carbon compounds for allied health majors and others requiring only 3 units of organic chemistry lecture. Prerequisite: CHEM 001B (with a grade of "C" or better; "C-" not accepted). Notes: CHEM 008 is not a satisfactory prerequisite for CHEM 112B. No credit toward Chemistry major or minor.

Chemistry 8 is designed to introduce you to organic chemistry in a one-semester course format. This course intends to familiarize you with the basic concepts and properties of molecules based on carbon.

Course Goals and Course Learning Outcomes (CLO)

CHEM 8	• Appreciation for the nature and scope of organic chemistry. • Application of key concepts from general chemistry including electronegativity, bonding (ionic and covalent), hybridization of atomic orbitals, and molecular orbital theory to organic systems. • Draw valence bond and Lewis dot structure for organic species, including formal charges. • Draw skeletal structures for organic compounds. • Apply acid-base concepts to organic systems; predict ordering of acid or base strength. • Name alkanes, alkenes, polyenes, alkynes, alkyl halides, aromatic compounds, carbonyl compounds, amines, and their various derivatives using systematic (IUPAC) nomenclature. • Learn common names for some key chemicals. • Draw reaction mechanisms for some key reactions. • Recognize stereochemistry and be able to apply the Cahn-Ingold-Prelog system to the designation of stereochemistry (E/Z or R/S). • Learn many of the reactions of alkanes, alkenes, polyenes, alkynes, aromatic, carbonyl, and amine compounds, and closely related species. Be able to predict reactions involving these functional groups. • Be able to solve problems employing spectroscopic methods including mass spectrometry, infrared and NMR spectroscopy • Understand the basic chemical and structural features of biomolecules, including lipids, carbohydrates, amino acids and proteins, and nucleic acids.

Program Learning Objectives

I. Core Chemistry Ideas (Fundamentals)

PLO 1.1 - Students will be able to identify, formulate, and solve a range of chemistry problems (fundamental to complex) through application of mathematical, scientific, and chemical principles.

PLO 1.2 - Students will be able to recognize, relate, and/or apply chemistry terms and concepts to propose and solve interdisciplinary and multidisciplinary real world problems.

Required Texts/Readings

Textbook

• Our textbook for the course is **'Organic Chemistry with a Biological Emphasis' by Tim Soderberg**. This is a free open-access eBook available for download online and from the SJSU Library. We will be picking and

choosing topics from the two volumes of this book, so I suggest you download the PDF files for both Volumes 1 and 2:
    - Volume 1 (https://digitalcommons.morris.umn.edu/chem_facpubs/1/)
    - Volume 2 (https://digitalcommons.morris.umn.edu/chem_facpubs/2/)
    - Solutions to in-chapter problems (https://digitalcommons.morris.umn.edu/chem_facpubs/3/)
    - Solutions to end-of-chapter problems (https://digitalcommons.morris.umn.edu/chem_facpubs/4/)

- If you prefer a print copy of the book, you can order them at the links below ($15 each volume, probably some shipping charges on top of that)
    - Order volume 1 print copy
    - Order Volume 2 print copy

Other technology requirements / equipment / material

- You will need access to a web-enabled cell phone, tablet, or computer
- Your computer or tablet capable of running one of the common web browsers (Firefox, Chrome, Explorer – NOT Safari, Canvas does not work well with Safari)
- An optional but useful item is a **molecular modeling kit**. There are many different types available for purchase online starting at $20 new – search for "Organic Chemistry Modeling Kit' and you should find many options. They are also available at the bookstore.
    - One option from Amazon for ~$13: link

Spring 2023 Paragraph for Syllabi on COVID-19 – coming soon

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. Please review the information contained in the following links:

- *University Syllabus Policy S16-9 at http://www.sjsu.edu/senate/docs/S16-9.pdf.*
- *Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/*

Attendance

Attendance at our Tuesday/Thursday class meetings is expected. If you miss class, you may miss important announcements and information related to the class. Some, but not all, notes from class will be shared on Canvas.

Gradescope

Exams will be collected during the exam period, scanned into Gradescope, and graded using the Gradescope software. Your graded exam will then be released to you via Gradescope – you will be notified via email when your assignment is available to view. The original copy of your submitted exam will be held by your instructor until the end of the semester.

For a video tutorial on how to review graded work on Gradescope, visit this site:

https://youtu.be/TOHCkI12mh0

Readings

There will be weekly **suggested** reading in the Soderberg textbook. The readings are a bit lengthy. I recommend you sit down to read with a list of the week's learning objectives in hand and focus on the parts of the reading related to those objectives.

Video Lectures

Each module includes several video lectures on the most important topics in the module. Some will have the accompanying slides available for download. Consider watching the videos before our face-to-face class meetings to get a preview of what we will be discussing.

Worksheets

For many modules there are worksheets with provided solutions available. Working these practice problems is **highly recommended** but not required. The practice problems are not submitted for a grade. We will work many of them during our Tuesday/Thursday class periods. These problems are focused on specific skill sets.

Suggested Practice Problems

There will be suggested practice problems for each module. The assignments come from the **in-chapter exercises** and **end-of-chapter problems** for the week's suggested reading. These problems are more challenging than the worksheets and give you the opportunity to apply concepts from class in new ways. Solutions for these exercises and problems are available in a downloadable solutions manual (link provided above).

Quizzes

At the end of each week, there will be a brief online quiz due that covers the material from the week. The quizzes can be taken repeatedly until the quiz due date and the **best** score earned will be the one recorded. So while the quizzes are graded activities, they also provide a good opportunity to practice key skills in preparation for the exams.

Exams

There will be 3 midterm exams and a final exam. You are required to take all three midterm exams. If your midterm exam average is A- or higher (>/=90%) going into the final exam, you are excused from the final exam. If your midterm exam average is B+ (<90%) or lower, you are required to complete the final exam.

- **Midterm 1: Thursday, March 2nd 9am - 10:15am <u>in person</u>**
- **Midterm 2: Thursday, April 6th 9am - 10:15am <u>in person</u>**
- **Midterm 3: Thursday, May 4th 9am - 10:15am <u>in person</u>**
- **Final: Wednesday, May 17th 7:15am – 9:30am <u>in person</u>**

Grading Information

Minimum grading

Our class grading will follow the minimum grading philosophy. The lowest score possible on any assignment is 50%, instead of 0%.

Your final letter grade in the class will be based on your weighted average score on all graded assignments. The assignments will be weighted according to the following percentages:

3 Midterm Exams	50%
1 Final Exam (cumulative)	20%
Quizzes	30%

A tentative breakdown of the assignment of letter grades to percentages is as follows:

Grade	Percentage
A plus	96 to 100%
A	93 to 95%
A minus	90 to 92%
B plus	86 to 89 %
B	83 to 85%
B minus	80 to 82%
C plus	76 to 79%
C	73 to 75%
C minus	70 to 72%
D plus	66 to 69%
D	63 to 65%
D minus	60 to 62%
F	Below 60%

Make-up, Late, and Missed Work Policy

This guideline supersedes all of the policies that follow:
If you know you are going to miss an assignment in advance, **contact me ahead of time** and we will make reasonable accommodations for your situation. There is a lot going on in the world right now and I am more than happy to offer you grace in tough times.

Quizzes. There are no make-up quizzes. If you miss a quiz due date for any reason, your score will be recorded as 50% and you cannot make it up. The lowest quiz score will be dropped from your grade.

Midterm exams. If you miss a midterm exam for a valid, documented reason, your missed exam score will be replaced with the average of the other two midterms. Missing an exam without a documented reason will result in a 50% score for the midterm.

Academic Integrity

I expect you to conduct yourself with the highest degree of academic integrity. Any violations of the University Policy on Academic Integrity will be pursued. The definitions of Academic Dishonesty are described below. Please follow the link to find the repercussions of academic dishonesty at San José State University.

DEFINITIONS OF ACADEMIC DISHONESTY from University Policy F15-7 Academic Integrity

- CHEATING
    - San José State University defines cheating as the act of obtaining credit, attempting to obtain credit, or assisting others to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means. Cheating includes:
        - copying, in part or as a whole, from another's test or other evaluation
        - instrument, including homework assignments, worksheets, lab reports, essays, summaries, and quizzes;
        - submitting work previously graded in another course without prior approval by the course instructor or by departmental policy.
        - submitting work simultaneously presented in two or more courses without prior approval of all course instructors or by the departmental policies of all departments;
        - using or consulting sources, tools, or materials prohibited by the instructor prior to or during an examination;
        - altering or interfering with the grading process;
        - sitting for an examination by a surrogate or as a surrogate;
        - any other act committed by a student in the course of his or her academic work that defrauds or misrepresents, including aiding others in any of the actions defined above.

- PLAGIARISM
    - San José State University defines plagiarism as the act of representing the work of another as one's own without giving appropriate credit, regardless of how that work was obtained, and submitting it to fulfill academic requirements. Plagiarism includes:

- knowingly or unknowingly incorporating the ideas, words, sentences, paragraphs, parts of sentences or paragraphs, or the specific substance of another's work without giving appropriate credit, and representing the product as one's own work;
- representing another's artistic or scholarly works, such as computer programs, instrument printouts, inventions, musical compositions, photographs, paintings, drawings, sculptures, novels, short stories, poems, screenplays, or television scripts, as one's own.

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, dropping and adding, consent for the recording of class, etc. is available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/".

Safe and Respectful Community

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

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.

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Course Schedule

The following is a tentative schedule for the course. Dates are subject to change with notice.

Date	Day	Special Days	Week/Module	Assignments Due
1/26	Thu			
1/31	Tue			
2/2	Thu		Module 1	
2/7	Tue			Module 1 Quiz Due
2/9	Thu		Module 2	
2/14	Tue			Module 2 Quiz Due
2/16	Thu		Module 3	
2/21	Tue			Module 3 Quiz Due
2/23	Thu		Module 4	
2/28	Tue			Module 4 Quiz Due
3/2	Thu	Exam 1 (1 - 4)	Module 5	
3/7	Tue			Module 5 Quiz Due
3/9	Thu		Module 6	
3/14	Tue			Module 6 Quiz Due
3/16	Thu		Module 7	
3/21	Tue			Module 7 Quiz Due
3/23	Thu		Module 8	
3/28	Tue	Spring Break	Spring Break	
3/30	Thu	Spring Break		
4/4	Tue		Module 9	Module 8 Quiz Due
4/6	Thu	Exam 2 (5 - 8)		
4/11	Tue		Module 10	Module 9 Quiz Due
4/13	Thu			
4/18	Tue		Module 11	Module 10 Quiz Due
4/20	Thu			
4/25	Tue		Module 12	Module 11 Quiz Due
4/27	Thu			
5/2	Tue		Module 13	Module 12 Quiz Due
5/4	Thu	Exam 3 (9 - 13)		
5/9	Tue		Module 14	
5/11	Thu			
5/15	Mon	Last day of classes		Module 13 + 14 Quiz Due
5/17	Weds	Final Exam		

Final Exam: Wednesday, May 17th 7:15am – 9:30am in DH 351