

San José State University
Chemistry Department, College of Science
Chem 08, Organic Chemistry, Fall 2021

Course and Contact Information

Instructor:	Laura Kapitzky, PhD
Office Location:	Virtual Office
Telephone:	1-510-457-1574 (this is a Google Voice phone number that will ring through to my cell phone)
Email:	laura.kapitzky@sjsu.edu
Office Hours:	Tuesdays 11am – 12pm and by appointment on Zoom Link will be provided on course Canvas site
Class Days/Time:	Official Class Time MW 9:00 - 10:15 AM See 'Course Format' below for details.
Classroom:	Virtual Classroom on Canvas / Zoom
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.

Course Format

- Chem 8 will be conducted as a hybrid course.
 - Video lectures, reading assignments, homework assignments, quizzes, and all other learning materials will be available on Canvas at the beginning of the semester for you to work through when it is convenient for you.
 - On Wednesdays there will be an **optional** live Zoom meeting. This will be a combination of lecture and working of practice problems relevant to that week's module. Lecture portions of the meeting will be recorded for later viewing.
- Live remote office hours will be held weekly via Zoom conferencing - I will provide more details at the beginning of the semester. These meetings are optional - you can log in to say hi and ask questions, and I encourage you to do so - but it is not required that you attend office hours. If you can't attend the scheduled office hours but have questions, please contact me to schedule an appointment.
- There will be weekly assignments with due dates to make sure you keep up with the material. These assignments will include a homework assignment, a discussion post and response, and a short quiz on the week's material. These items may be completed at any time during the week as long as they are submitted before the designated due date and time. The due dates follow a consistent pattern throughout the semester so you can plan them into your weekly schedule.
- There will be three online midterm exams and a final exam that need to be taken **synchronously**, meaning all students in the class will take them at the same time. Please put these dates on your

calendar. Note that all the midterms are held during our scheduled class time, and the final will take place during the scheduled final exam timeslot for our course. These exams will take place online on:

- **Midterm 1: Wednesday, September 29th from 9am - 10:15am**
- **Midterm 2: Wednesday, November 3 from 9am - 10:15am**
- **Midterm 3: Monday, December 6th from 9am - 10:15am**
- **Final: Thursday, December 9th from 7:15am – 9:30am**

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](http://sjsu.instructure.com) 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	<ul style="list-style-type: none">• 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
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| | <ul style="list-style-type: none">• Understand the basic chemical and structural features of biomolecules, including lipids, carbohydrates, amino acids and proteins, and nucleic acids. |
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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.

II. Experimentation/Lab Practice

PLO 2.1. Students will be able to develop an experiment to address a hypothesis using literature and execute the planned experiment using standard chemistry techniques.

PLO 2.2 Students will be able to acquire, record, and critically evaluate data through use of instrumentation and software, appropriate record keeping practices, figure preparation, and scrutiny of experimental results.

PLO 2.3 Students will be able to recognize and assess laboratory hazards, practice risk minimization, and conduct safe laboratory practices.

III. Community, Social, Societal Implications

PLO 3.1 Students will be able to explore, critique, and reflect on how chemistry relates to society, culture, and issues of equity and ethics that shape their scientific beliefs and identities.

PLO 3.2 Students will be able to identify as scientists within the scientific community through constructing peer reviews, engaging in collaborations, and participating in mentorship.

IV. Communication Skills

PLO 4.1 Students will be able to design and deliver engaging presentations on diverse chemistry topics in a professional manner and with clear, concise organization that demonstrates mastery of the topic.

PLO 4.2 Students will be able to integrate research findings into a concise original written report that either analyzes collected data and obtained results or reviews and reflects on published scientific work.

PLO 4.3 Students will be able to identify an audience and construct a message tailored to that audience and act as a science ambassador by conveying the importance of the research or topic of study.

PLO 4.4 Students will be able to prepare professional documents, such as résumés and cover letters, that accurately represent the students' skills and knowledge for graduate/professional school or potential future employers.

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/) (https://digitalcommons.morris.umn.edu/chem_facpubs/1/)
 - [Volume 2](https://digitalcommons.morris.umn.edu/chem_facpubs/2/) (https://digitalcommons.morris.umn.edu/chem_facpubs/2/)
 - [Solutions to in-chapter problems](https://digitalcommons.morris.umn.edu/chem_facpubs/3/) (https://digitalcommons.morris.umn.edu/chem_facpubs/3/)
 - [Solutions to end-of-chapter problems](https://digitalcommons.morris.umn.edu/chem_facpubs/4/) (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 or tablet with a working Camera
- Additionally, you will need a computer or tablet capable of running one of the common web browsers (Firefox, Chrome, Explorer)
 - **Note:** the reason for both is that for the two midterms, you will need to take the exam on one device and live stream video of yourself from the second device. You only need access to two devices at the same time for the midterms.
- 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.
 - If you are a crafty person, you might be interested in making your own model kit (not easy!):
 - <https://www.instructables.com/id/Home-Made-Molecular-Model-Kit/>
 - You can also just use your hands, although this is not quite as foolproof as a real kit:
 - <https://www.masterorganicchemistry.com/2011/02/11/the-worlds-cheapest-molecular-model-kit/>

Course Requirements and Assignments

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](http://www.sjsu.edu/senate/docs/S16-9.pdf) at <http://www.sjsu.edu/senate/docs/S16-9.pdf>.
- Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Attendance

This is primarily an asynchronous online class. There are **optional** synchronous class meetings during our Wednesday 9 – 10:15am class period. The only times you are required to appear online at a specific time are for the three midterm exams and the final exam – please see the course schedule for specific dates and times.

Readings

There will be weekly reading assignments in the Soderberg textbook. They are a bit lengthy. I recommend you make a reading outline as you progress through the material – it will help keep you focused and keep the important things front and center.

Lectures

Each week there will be several video lectures to watch. Some will have the accompanying slides available for download. Treat these video lectures as you would a traditional face-to-face lecture – take notes as you go, review your notes after “class”.

Practice Problems

For many modules there are sets of practice problems 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 some of them during the optional Wednesday class period.

Homework

There will be weekly homework assignments to ensure you are practicing working with the material. The assignments come from the **in-chapter problems** for the week's reading assignment. The homework problems are not the end-of-chapter problems.

Discussion Post

You will be asked to complete a short assignment related to that week's material. Your initial discussion post is due on Thursday, and usually you are required to respond to one of your classmates' discussion posts by Sunday of the same week to earn full credit for your discussion assignment.

Quizzes

At the end of each week, there will be a brief online quiz due that covers the material from the previous week. This gives you two weeks to read, watch videos, complete homework, and get your questions answered before you take a quiz on a set of material. The quizzes can be taken repeatedly until the quiz due date and the highest 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 ($\geq 90\%$) 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.

Grading Information

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:

Exams	60%
Homework	10%
Quizzes	10%
Discussion Post	20%

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 to help you through tough times. The exception to this is the midterm exams. Please make every effort to take the midterms as scheduled.

Discussion Post. There are no make-ups for missed Discussion Post points. To accommodate unpredictable life events and lapses in memory, the lowest Discussion Post grade will be dropped from your score.

Homework. Homework submitted after the due date and time for the assignment will be docked 50% per day. Homework cannot be submitted more than one day late, will receive a zero, and cannot be made up. Note: it is still worth doing your homework even if you will not receive full (or any) credit for it. The lowest homework score will be dropped from your final grade.

Quizzes. There are no make-up quizzes. If you miss a quiz due date for any reason, your score will be recorded as zero and you cannot make it up. To accommodate unpredictable life events, the lowest quiz score will be dropped from your grade.

Exams. If you miss an exam for a valid, documented reason, you have one week to schedule a make-up exam. Missing an exam without a documented reason will result in a zero score for the midterm.

Extra Credit

The only extra credit opportunity in this course occurs in the first week in the Introductory Discussion thread. After introducing yourself to the class for credit, you can reply to as many classmates as you would like and receive one extra point per response, up to two extra credit points maximum.

Netiquette

Our classroom is online, and so has different etiquette concerns than a traditional face-to-face classroom. Please keep the following guidelines in mind when interacting with your classmates and your instructor this semester.

1. **Remember the Human:** When you communicate electronically, all you see is a computer screen. You don't have the opportunity to use facial expressions, gestures, and tone of voice to communicate your meaning; words -- lonely written words -- are all you've got. And that goes for your correspondent as well. Remember the Prime Directive of Netiquette: Those are real people out there. Ask yourself, "Would I say this to the person's face?" If the answer is no, rewrite and reread. Repeat the process till you feel sure that you'd feel as comfortable saying these words to the live person as you do sending them through cyberspace.
2. **Adhere to the same standards of behavior online that you follow in real life:**
 - o **Be ethical:** if you encounter an ethical dilemma in cyberspace, consult the code you follow in real life. Chances are good you'll find the answer.
 - o **Don't break the law:** If you're tempted to do something that's illegal in cyberspace, chances are it's also bad Netiquette.
3. **Know where you are in cyberspace:** When you enter a domain of cyberspace that's new to you, take a look around. Spend a while listening to the chat or reading the archives. Get a sense of how the people who are already there act. Then go ahead and participate. In this case, you are in an online classroom, and you should behave the same as you would behave in a live classroom.
4. **Respect other people's time and bandwidth:** When you send email or post to a discussion group, you're taking up other people's time (or hoping to). It's your responsibility to ensure that the time they spend reading your posting isn't wasted.
5. **Make yourself look good online:** You won't be judged by the color of your skin, eyes, or hair, your weight, your age, or your clothing. You will, however, be judged by the quality of your writing. For most people

who choose to communicate online, this is an advantage; if they didn't enjoy using the written word, they wouldn't be there. So spelling and grammar do count.

6. **Share your expert knowledge:** The strength of cyberspace is in its numbers. The reason asking questions online works is that a lot of knowledgeable people are reading the questions. And if even a few of them offer intelligent answers, the sum total of world knowledge increases. The Internet itself was founded and grew because scientists wanted to share information. Ask questions when you need an answer, and always share what you learn with your classmates or help answer their questions.
7. **Help keep flame wars under control:** "Flaming" is what people do when they express a strongly held opinion without holding back any emotion. It's the kind of message that makes people respond, "Oh come on, tell us how you really feel." Tact is not its objective. People are welcome to their opinions and strong emotions. Flame wars result when contrary opinions are argued back and forth in a flaming manner. Agree or disagree professionally, and if you can, support your opinions with facts. Respect the opinions and emotions of your classmates.
8. **Respect other people's privacy:** do not share your classmate's private information in any open communication in an online classroom. This includes discussions, or group emails. And do not share a classmate's private information with your instructor. That's just tattling, and nobody likes a tattletale.

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) (<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](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>.

Chem 8, Organic Chemistry Online, Fall 2021

Course Schedule

The following is a tentative schedule for the course. Dates are subject to change with notice. Notice will be provided via Canvas announcements.

Day	Date	Week/Module	Assignments Due/Holidays
Thu	8/19	Week/Module 0	First Day of Classes
Fri	8/20		
Sat	8/21		
Sun	8/22		Intro Discussion Post
Mon	8/23	Week/Module 1	
Tue	8/24		
Wed	8/25		
Thu	8/26		Module 1 Participation Due
Fri	8/27		
Sat	8/28		
Sun	8/29		Syllabus Quiz Due, Practice Assignment Due, Discussion Response Due
Mon	8/30	Week/Module 2	
Tue	8/31		Last day to Drop Class
Wed	9/1		
Thu	9/2		Module 2 Participation Due
Fri	9/3		
Sat	9/4		
Sun	9/5		Module 1 Quiz Due, Module 1 Homework Due, Discussion Response Due
Mon	9/6	Week/Module 3	Labor Day No Class
Tue	9/7		
Wed	9/8		Last day to Add Classes
Thu	9/9		Module 3 Participation Due
Fri	9/10		
Sat	9/11		
Sun	9/12		Module 2 Quiz Due, Module 2 Homework Due, Discussion Response Due
Mon	9/13	Week/Module 4	
Tue	9/14		
Wed	9/15		
Thu	9/16		Module 4 Participation Due
Fri	9/17		
Sat	9/18		
Sun	9/19		Module 3 Quiz Due, Module 3 Homework Due, Discussion Response Due
Mon	9/20	Week/Module 5	

Tue	9/21		
Wed	9/22		
Thu	9/23		Module 5 Participation Due
Fri	9/24		
Sat	9/25		
Sun	9/26		Module 4 Quiz Due, Module 4 Homework Due, Discussion Response Due
Mon	9/27	Week/Module 6	
Tue	9/28		
Wed	9/29		Midterm 1
Thu	9/30		Module 6 Participation Due
Fri	10/1		
Sat	10/2		
Sun	10/3		Module 5 Quiz Due, Module 5 Homework Due, Discussion Response Due
Mon	10/4	Week/Module 7	
Tue	10/5		
Wed	10/6		
Thu	10/7		Module 7 Participation Due
Fri	10/8		
Sat	10/9		
Sun	10/10		Module 6 Quiz Due, Module 6 Homework Due, Discussion Response Due
Mon	10/11	Week/Module 8	
Tue	10/12		
Wed	10/13		
Thu	10/14		Module 8 Participation Due
Fri	10/15		
Sat	10/16		
Sun	10/17		Module 7 Quiz Due, Module 7 Homework Due, Discussion Response Due
Mon	10/18	Week/Module 9	
Tue	10/19		
Wed	10/20		
Thu	10/21		Module 9 Discussion Due
Fri	10/22		
Sat	10/23		
Sun	10/24		Module 8 Quiz Due, Module 8 Homework Due, Discussion Response Due
Mon	10/25	Week/Module 10	
Tue	10/26		
Wed	10/27		
Thu	10/28		Module 10 Participation Due
Fri	10/29		
Sat	10/30		
Sun	10/31		Module 9 Quiz Due, Module 9 Homework Due, Discussion Response Due
Mon	11/1	Week/Module 11	

Tue	11/2		
Wed	11/3		Midterm 2
Thu	11/4		Module 11 Participation Due
Fri	11/5		
Sat	11/6		
Sun	11/7		Module 10 Quiz Due, Module 10 Homework Due, Discussion Response Due
Mon	11/8	Week/Module 12	
Tue	11/9		
Wed	11/10		
Thu	11/11		Veterans' Day No Class
Fri	11/12		Module 12 Participation Due
Sat	11/13		
Sun	11/14		Module 11 Quiz Due, Module 11 Homework Due, Discussion Response Due
Mon	11/15	Week/Module 13	
Tue	11/16		
Wed	11/17		
Thu	11/18		Module 13 Participation Due
Fri	11/19		
Sat	11/20		
Sun	11/21		Module 12 Quiz Due, Module 12 Homework Due, Discussion Response Due
Mon	11/22	No Material - Fall Break	
Tue	11/23		
Wed	11/24		Thanksgiving Break
Thu	11/25		Thanksgiving Break
Fri	11/26		Thanksgiving Break
Sat	11/27		Thanksgiving Break
Sun	11/28		Thanksgiving Break
Mon	11/29	Week/Module 14	
Tue	11/30		
Wed	12/1		Module 13 Homework Due, Module 14 Discussion Due
Thu	12/2		
Fri	12/3		
Sat	12/4		
Sun	12/5		Module 14 Quiz Due, Module 14 Homework Due, Discussion Response Due
Mon	12/6		Last Day of Classes, Midterm 3
Tue	12/7	Reading Day	
Wed	12/8	Final Exams	
Thu	12/9		Final Exam 7:15am – 9:30am Online
Fri	12/10		
Sat	12/11		
Sun	12/12		
Mon	12/13		
Tue	12/14		

