

San José State University
Science/Chemistry Department
Chem.9, Organic Chemistry Lab Spring 2022

Course and Contact Information

Instructor:	Rose Wang
Office Location*:	Science Building 140
Office Telephone*:	(408) (924-4997) <i>* Since our course will be online at the beginning, please don't use my office and office phone. Please use our zoom office hours.</i>
Email:	xiao.wang@sjsu.edu and wang932@yahoo.com (yahoo email is preferred)
Office Hours:	We start from online zoom office hours through 2/14. zoom code: 992 6702 2018 or https://fhda-edu.zoom.us/j/99267022018 ♦ Tue. 1:20 – 2:20 pm (if later our lab move to in-person, office hour will be in DH 503) ♦ Fri. 12:20 – 1:00 pm (if later our lab move to in-person, office hour will be in Sci. 154)
Class Days/Time:	We start from online labs through 2/14. zoom code: 992 6702 2018 or https://fhda-edu.zoom.us/j/99267022018 ♦ Thur. 2:30 to 5:20 pm (at the beginning class is online, we still start at 2:30) ♦ Fri. 9:30 am – 12:20 pm (at the beginning class is online, starting time changes to 10:30; if in-person later, we will start at 9:30 am) ♦ Fri. 1:00 – 3:50pm (at the beginning class is online, we still start at 1:00 pm)
Classroom:	Online at the beginning, later in-person lab is in room Sci. 154
Prerequisites:	Chem. 1B with passing grade and Chem. 8 passed or take it at the same time as Chem. 9

Course Format

This is an in-person course, but now due to the Covid situation, we start on online at the beginning to 2/24/22. We will go to the lab room after 2/14/2022.

- **Before the zoom meetings (later before the in-person lab time):**
 - Go over the reading materials in **textbook** and **SJSU lab manual** (see lab instruction in Canvas for each lab or see the last schedule page).
 - Go over my lab lecture PPT videos in Canvas. I will provide lab manual on Canvas, but **you have to make textbook ready at end of January!**
 - Watch the Youtube videos if the class is in person (see instruction for each lab. If the Youtube videos are removed from online, it is fine since it is out of our control. You could find a similar video to watch.) If the class is online, you still need to watch the Youtube videos. We may watch some of the Youtube videos again to serve as you “doing the lab”. In this way students could get more impressions even though the lab is online.
 - Finish the prelabs and upload them into the Canvas (**due time** is about 20 min. before your lab time.)
For in-person lab, turn the prelab to me in-person at beginning of the lab,
- **During the zoom meetings (we schedule about 2 hours zoom meeting time each week, but in-person lab will be three hours in the lab room):**
 - We will discuss one or two pop quiz questions.
 - I will let students ask questions about the PPT videos that you already go over and we will go over partial materials in my PPT to emphasize major points and experiment procedures
 - **Students will watch the lab videos in zoom meeting (will do lab if lab becomes in-person), and get the lab data (results) from zoom meetings (get the data from your experiments if in-person lab). So attending zoom meetings (labs) are important for you to get the lab data to finish your lab reports, and to pass this course.**
 - We will discuss the lab results and difficult questions at end of the lab if time permits.
 - At the beginning of a zoom meeting, you will get a pop quiz through Canvas. Please print it out (**for in-person lab, also print out pop quiz and bring it to the lab room.**) We will do discussion together to finish the quiz at the beginning of the zoom meetings. **You need to upload the finished pop quiz and recorded lab data on the same day to canvas for grading (for in-person lab, you need to turn the quiz and lab data to me before your leave.)** This may help students to review for the materials, and help students to stay in the zoom meetings, the ultimate purpose is to help you to pass this course with better understanding and good grades!
 - Students could ask any questions about current labs and previous labs if time permits.
- **After the zoom meetings:**
 - Finish the lab report (a lab report will be due one week after the lab)
 - Visit my office hours if you have questions.
 - Upload your lab reports before the due time, you can upload earlier (**for in-person lab, you need to turn things to me in-person**)
 - Upload the pop quizzes and lab data on the same day (**for in-person lab, turn them to me before you leave.**)

Canvas

Course materials such as syllabus, SJSU lab manual, PPT videos, assignment instructions, etc. can be found on our course Canvas. You are responsible for regularly checking with the announcements, assignment due dates, etc. in Canvas!

Course Description

This course is intended to acquaint the student with the most commonly used procedures for preparation, purification and analysis of organic compounds. Although results - yield, purity, accuracy of data, etc. - shall be considered as part of the report grade as appropriate, the primary emphasis is on understanding the theory and application of these techniques.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

- Understand and apply basic techniques used in the organic laboratory for preparation, purification and identification of organic compounds.
- Learn the major techniques used in organic chemistry laboratory include melting point determination, extraction, chromatography, infrared spectroscopy, distillation and chemical characterization tests.
- Synthesize at least one organic compound.
- Calculate reaction yield for relevant lab experiments.
- Develop the ability to analyze the given procedures of an experiment and suggest or recommend improvements.
- Conduct the practices of laboratory investigations safely by following the safety rules learned.
- Develop a better understanding the organic chemistry behind everyday observations such as the action of soap, or application of color dyes on variety of fabrics.

Required Texts/Readings

• **Textbook** (You must have this textbook! Although I provide SJSU lab manual this semester, due to copyright rule, you have to buy or rent HCHV textbook since a lot of principles and lab procedures are in HCHV text!) Hart, Craine, Hart and Vinod, *Organic Chemistry Lab Manual - A Short Course* (Suggested to use either 12th Edition or 13th edition.) You can buy a used book for 12th ed. or share the books within students. Also you could buy online textbook in different websites. One of the websites is: <http://www.chegg.com/textbooks/lab-manual-for-organic-chemistry-a-short-course-13th-edition-9781111425845-1111425841>

Some students buy electronic text in different websites to save the money. For some experiments, the lab procedures are in this text.

• **Chem. 9 Lab Manual.** For an online course, I will provide this manual through Canvas! You must have this, since many blank prelab and lab reports and some lab procedures are in this SJSU Lab Manual! Some experiment procedures are in HCHV textbook that you need to buy.

For each experiment, you need to read BOTH text and SJSU lab manual. Please see the last page schedule and lab instructions in each module for the reading information.

Other equipment / material requirements

Note that chem. 9 at beginning is an online course. **We require a computer, camera, microphone, speaker, printer and a way to upload your report sheets/worksheets/exams work up in a manner that we can read it easily. A scanner might be best** but a camera that takes good, clear, readable images allows you to upload documents. Many computers come with a camera, speaker and microphone, but not all. I will also note that many are purchasing these items now so delivery dates are often weeks after the order is placed. **In Canvas, I can open pdf, jpeg files. Please upload pdf file or picture file (jpeg or jpg) that I could open. Please DON'T UPLOAD HEIC FILES to Canvas.**

For Midterm and Final, hopefully those times we are in-person lab, so tests will be in lab room. But if those times our course is still online, you have to make sure that you set up "LockDown Browser" (also see Canvas Navigation part on left side). You can only access the tests through LockDown Browser.

LockDown Browser helps instructors to proctor the tests. Everyone must make LockDown Browser work at the beginning, since we will do a safety quiz at the beginning.

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

NOTE that [University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

Grading Policy

The grading scheme consists of the final grade being a weighted average of prelab, lab quiz and lab data, lab report, midterm and final exam grades in the proportions:

Prelab Reports:	14% (140 pts, must upload about 20 min. before zoom meetings)
Quiz and Lab Data:	4% (40 pts, must upload it right after each of zoom meeting , drop the lowest one)
Lab Reports:	32% (320 pts, due one week after the lab)
Discussions:	3% (30pts, 3 discussions On Canvas, each one is 10 pts)
Midterm:	18% (180pts)
Final Exam:	29% (290pts)
	100% (1000pts)

A Letter grades will be assigned according to the following percentage scale:

A⁺ ≥ 97.0% A ≥ 92.0% A⁻ ≥ 90.0% B⁺ ≥ 86.0% B ≥ 82.0% B⁻ ≥ 80.0%
C⁺ ≥ 75.0% C ≥ 65.0% C⁻ ≥ 60.0% D⁺ ≥ 56.0% D ≥ 52.0% D⁻ ≥ 50.0% F < 50.0%

Precise cut-offs may differ by ± 1.0% of the above listed numbers, and are determined only after all points for have been totaled. Also I reserve the right to raise the grade of any student by 1.0% increase for **consistently** outstanding work (including preparation, lab work, and lab reports, participation, etc.)

- You must take the final exam to pass the course.
- You will receive more extra credit in midterm and final.
- Statistically, if your average exam percent is less than 55%, it is hard for you to get a C. But for some majors, it only needs a D to pass, please check with your adviser to see your minimum pass grade.
- If you FAIL THE LABORATORY PORTION of this course, you **WILL NOT EARN A PASSING GRADE IN THIS COURSE.**
- In order to be fair to all students, **make-up exams will NOT be given.**
- A grade of F is also given for **cheating or for being disruptive during the lab lectures or labs.**
- **Bonus scores will be distributed during two tests and in pop quizzes and/or in some very good prelab/lab reports to encourage students do better.**
- **At beginning of the zoom meeting, we will solve the pop quiz questions, and at the end of zoom meeting, you get the lab data for your section during the discussion – lab data are different for different sections (zoom meetings) for the same lab. You need to upload pop quiz and lab data page right after the zoom meeting (the same day of the zoom meeting) for 5 pts. Late submission will get each day 10% off; no credit will be given for not attending zoom meeting or in-person lab. To help students to pass this course, I will check the attendance at beginning and at end. For each zoom meeting, please do sign-in and sign-out in zoom chat-area.**

Note that “All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades.” See [University Policy F13-1](http://www.sjsu.edu/senate/docs/F13-1.pdf) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details.

Classroom Protocol

◆ **Coming to lab zoom meetings (later lab room) PREPARED AND ON TIME**

Because this is a laboratory class, and one in which we work with hazardous materials, even though there is no actual safety issues for an online course, **coming to lab PREPARED AND ON TIME are an essential elements for success and safety in the course especially for an in-person lab. If you come unprepared and/or are tardy such that you missed some discussions, you will get points off for your “quiz and lab data” and lab report parts. Please pay attention to the lab discussions, since they are very important to the lab safety and your lab tests. Also the discussions will help you to be successful for understanding the experiments.**

◆ **Laboratory Safety:**

The department safety rules are on page 2 to 6 of your lab manual (in Canvas Module 1.) Please read it carefully! You must pass the safety quiz with 80% or up to be allowed to do the experiments in the lab! If you fail the safety quiz with less than 80%, you need to study the materials about the lab safety again, and you have chance to re-take the safety quiz one more time.

We will watch the safety video together in the first meeting. You also could watch it again and watch more safety videos at home to prepare for the safety quiz: <https://www.youtube.com/watch?v=3ELbwzqyuhs>, <https://www.youtube.com/watch?v=9o77QEeM-68>, <https://www.youtube.com/watch?v=ALBWxGik64A> etc. Service Center Procedures: When we go to lab room, stock room (O-Chem lab service center) will give you procedure to read.

◆ **At the beginning of the class, you have to read some important files and sign several important pages:**

1. Signature sheet in Module 1: After you go over chem. 9 SOP Files, read the Department Safety Rules, watch the Safety Videos, and read the Syllabus carefully, you need to acknowledge that you understand all responsibilities by initial each item and sign the Signature Sheet. **You need to use blue ink to sign, then take picture, and upload the picture of the sheet to Canvas. This sheet is so important that school will retain it for years as evidence our students did all those trainings.**
2. **You need to go over SOP (Standard Operating Procedure) files, and sign the sheet(s) with wet ink (and maybe also need to sign in DocuSign.)**
3. Enrollment Sheet in Module 1 for the information that I want.

Using LockDown Browser and a webcam (Respondus Monitor) for Online Exams If When Exam times our lab is online. **If our lab moves to lab room, the exams will be in the lab room.**

The sample wording below can be used in your course to explain that students must use LockDown Browser and a webcam (Respondus Monitor) for their online tests.

[Download this text in a Word file](#)

Using LockDown Browser and a Webcam for Online Exams

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be built into your computer or can be the type that plugs in with a USB cable. Watch this [short video](#) to get a basic understanding of LockDown Browser and the webcam feature.

Then download and [install LockDown Browser](https://www.sjsu.edu/ecampus/teaching-tools/respondus/index.html) from this link:
<https://www.sjsu.edu/ecampus/teaching-tools/respondus/index.html>

Note: Don't download a copy of LockDown Browser from elsewhere on the Internet; those versions won't work at our institution.

To take an online test, start LockDown Browser and navigate to the exam. (You won't be able to access the exam with a standard web browser.) For additional details on using LockDown Browser, review this [Student Quick Start Guide \(PDF\)](#).

Finally, when taking an online exam, follow these guidelines:

- Ensure you're in a location where you won't be interrupted
- Turn off all mobile devices, phones, etc.
- Clear your desk of all external materials — books, papers, other computers, or devices
- Remain at your desk or workstation for the duration of the test
- If a webcam is required, make sure it is plugged in or enabled before starting LockDown Browser
- LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted
- If a webcam is required, you will be recorded during the test to ensure you're using only permitted resources

University Policies

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](http://www.sjsu.edu/provost/services/academic_calendars/) at http://www.sjsu.edu/provost/services/academic_calendars/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

Consent for Recording of Class and Public Sharing of Instructor Material

[University Policy S12-7](http://www.sjsu.edu/senate/docs/S12-7.pdf), <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course and the following items to be included in the syllabus:

- “Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”
 - It is suggested that the greensheet include the instructor's process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.
 - In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.
- “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated

material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](http://www.sjsu.edu/aec) (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability.

Accommodation to Students' Religious Holidays

San José State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See [University Policy S14-7](http://www.sjsu.edu/senate/docs/S14-7.pdf) at <http://www.sjsu.edu/senate/docs/S14-7.pdf>.

Please see the next page for the schedule.

Chem. 9 / Organic Chemistry Lab, Spring 2022, Lab Schedule

- **The schedule is subject to change with fair notice and how the notice will be made available.**
- **After each zoom meeting, you need to upload the pop quiz and lab data on the same day – this part is not in the following schedule, but is mentioned here. If the lab moves to lab room, you need to turn the quiz and lab data to me in person before you leave the lab.**

Wk	Date	Topic	Exp. # in HCHV	Reading Pages from HCHV text and SJSU lab manual	Prelab Due (before lab)	Quiz/Lab Data Due (right after lab)	Lab Repts Due (in lab)
0	1/27-28	Safety/Greensheet/SOP					
1	2/3-4	Safety Quiz, Lab 1: Synthesis of Aspirin	exp. 21 (p319-326 Macroscale)	Text: Macroscale on vi Intro (viii-x) p 319-326 & p 221	Prelab 1	Q1/Lab data 1	
2	2/10-11	Lab 2: Melting Point	exp. 1 (p 1-10)	Text: Page 1-5	Prelab 2	Q2/Lab data 2	Report 1 & Wksht 1
3	2/17-18	Possible Check-in In lab room					
4	2/24-25	Lab 3: Recrystallization	exp. 2 (p 11-13)	Text: part 1 & 2, Page 11-13. Read procedure in SJSU Manual	Prelab 3	Q3/Lab data 3	Report 2
5	3/3-4	Lab 4: Extractive Separations	exp. 4 (p 33-36)	Text: Page 33-36. Read Procedure in SJSU Manual	Prelab 4	Q4/Lab data 4-1	Report 3
6	3/10-11	1) Lab 4 (Continued) 2) Lab 6-1: Set up Fermentation		Find fermentation exp. in lab 6 or at end of lab 5 in SJSU lab manual	none	Q5/Lab data 4-2	Wksheet 2
7	3/17-18	Lab 6-2: Simple Distillation	exp. 3 (p23 – 28)	Text: Page 23-28 & Read Procedure in SJSU Manual	Prelab 6	Q6/Lab data 6-1	Report 4
8	3/24-25	Mid-Term (To cover everything <u>except distillation</u>)					
9	3/31-4/1	Spring Break					
10	4/7-8	Lab 6-3: (Continued) Fractional Distillation			none	Q7/Lab data 6-2	Wksheet 3
11	4/14-15	Lab 7: Dry lab Infrared Spectroscopy	exp. 25 (p369 – 372)	Text: Page 369 - 372 Read SJSU lab manual	Prelab 7	Q8/Lab data 7	Report 6
12	4/21-22	Lab 8: Thin Layer Chromatography (Analgesics)	exp. 6B (p59 – 64)	Text: Page 59-64 Read Procedure in SJSU Manual	Prelab 8	Q9/Lab data 8	Report 7
13	4/28-29	Lab 9: Reactions of Aldehydes and Ketones	exp. 15 (p231 – 243)	Text: p231, p233 (B1), p236 to 240 (C1 & C2), p241 to 243 (all D)	Prelab 9	Q10/Lab data 9	Report 8
14	5/5-6	Lab 10: Synthesis of Soap	exp. 29 (p409 – 414)	29B (pp 409-414);	Prelab 10	Q11/Lab data 10	Report 9 Report 10
15	5/12-13	Check-Out		Review if lab is online			Report 10
16	5/16-20	Final	(Wed. 5/18) FINAL: SECTION 2, 12:15 – 2:30 pm (Wed. 5/18) FINAL: SECTION 3, 2:45 – 5:00 pm				
17	5/23-27	Final	(T. 5/24) FINAL: SECTION 1, 7:15 – 9:30 am				