Chemistry 113A Organic Chemistry Laboratory (Sec 6)
Fall 2021

Contact Information

Instructor:	Laura Kaptizky, PhD
Office Location:	(All office hours will be held by Zoom in Spring 21)
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Office Hours:	Tues 11:00am to Noon and by appointment All Office hours will be held via ZOOM; there will not be any "in-person" office hours.
Class Days/Times:	TuesThurs 6:00pm to 8:50pm
Prerequisites:	CHEM 112A (completed with a grade of "C" or better; "C-" not accepted); Chem 112A may not be taken concurrently with Chem 113A.

Faculty Web Page and MYSJSU Messaging

This section of Chem 113A will involve all online sessions. Most content will be given by Zoom, Canvas or other platforms used by your instructor. If you do not currently have access to Zoom or Canvas, visit sjsu.edu and search for instructions to access both of these platforms. Information from this class will be sent to the email listed on your mySJSU profile – be sure that this is an email address you check regularly.

Course Description

Chem 113A introduces many of the basic techniques for synthesis, isolation, purification and identification of organic compounds. The emphasis is on practical skills in the laboratory and in analysis of data. Sufficient theoretical background will be developed to allow the student to understand the design of experiments and to modify established procedures. The course will also provide practice in the formal writing of experimental procedures and findings. See the Calendar at the end of this document for important dates.

Required Texts/Readings

GREENSHEET AND CALENDAR

This Greensheet and Calendar will be posted on Canvas for this section, and also on the Chemistry Department website (http://www.sjsu.edu/chemistry/).

REQUIRED TEXTBOOK ***(IF YOU ARE A CHEMISTRY MAJOR or MINOR, READ THE COMMENT ABOUT THE PAVIA TEXTBOOK)***

Pavia, D. L., Lampman, G. M., Kriz, G. S., Vyvyan, J. R. *Introduction to Spectroscopy,* 5th ed., **Cengage**. (read the next 2 sections carefully before you purchase Pavia)

The SJSU Bookstore sells a custom truncated version of Pavia intended for non-ChemBiochem majors. It is missing several important chapters that will be needed for Chem 113B/114, so if you plan to take these courses, the custom version is NOT appropriate for you

CHEMISTRY MAJORS or MINORS *WHO PLAN TO TAKE CHEM 113B and/or 114 IN THE FUTURE SHOULD OBTAIN THE FULL EDITION OF PAVIA - the SJSU Bookstore does not carry this edition, but it can be obtained from Amazon or other book sellers. The shortened edition mentioned above does not have important chapters you need for later courses.* DO NOT obtain the electronic (eBook) version for this class – **you may use a paper copy during quizzes and exams, but may not use an electronic version.**

Make sure you have the 5th edition; older editions will contain significant differences.

All aspects of this section of Chem 113A will involve material provided to you using Canvas and Zoom, and you will be required to submit reports and assignments electronically. Therefore, you are required to have a device (such as a computer, pad, smartphone) that allows you to access the web and use these platforms. You must also have access to an internet service that provides a reliable connection. In addition, you are also required to have a phone camera or computer camera that can transmit a video while you take a quiz or exam. Details will be provided by your instructor.

Other Recommended Readings

- McMurry, John, *Organic Chemistry* (any recent edition), or an organic chemistry textbook from a one-year Ochem lecture course.
- *The ACS Style Guide: Effective Communication of Scientific Information* 3rd ed.; Coghill, A. M., Garson, L. R., Eds.; American Chemical Society: Washington DC, 2006

Other equipment / material requirements

- Scientific laboratory notebook with duplicate numbered pages
- Basic calculator (one that cannot connect to the internet, bring to every quiz/exam)
- Pencils, rulers

Library Liaison

The Chemistry Library Liaison is Yen Tran (yen.tran@sjsu.edu)

Course Prerequisites and Learning Objectives

Catalog Description *Fundamental techniques for the isolation, characterization and synthesis of organic compounds. Prerequisite: CHEM 112A (with a grade of "C" or better; "C-" not accepted). Misc/Lab: Lab 6 hours.*

You must have completed Chem 112A with a grade of "C" or better to enroll in Chem 113A. **If you are repeating Chem 112A, you may not take Chem 113A until you complete 112A with a grade of "C" or better – 112A and 113A may not be taken at the same time!** If you took an 112A-equivalent course at another institution, the instructor will ask for verification of your grade and information on the lab course you took.

The scheduled time for Section 6 is Tues & Thurs 6:00pm to 8:50pm. The Calendar and Table of Activities at the end of this Greensheet will tell you what will occur on each lab meeting.

Chem 113A will include six Experiments (A to F). You will prepare reports for each of these Experiments – four in written format and two in video format. These reports must be submitted electronically to Canvas assignments. In some cases, you will have to include documents which are scanned or photographed. Information on preparing and submitting Lab Reports is found in Canvas Files.

See the Calendar for due dates of each report. At the start of the period when a report is due, you will also take a lab quiz on Canvas which is based on the experiment (6 quizzes total). A midterm and Final Exam are also scheduled.

Course Goals and Learning Objectives - Chem 113A

• Students will be able to demonstrate their knowledge of departmental safety rules through their laboratory practice, including the ability to dispose of waste properly (Note this applies even though you will not be working in the lab)

• Students are expected to apply basic stoichiometric algorithms (such as calculating limiting reagents, theoretical yield and mole ratios) in the context of organic chemistry.

• Students will be expected to demonstrate a command of the rules for assigning significant figures in their work, specifically in calculations and laboratory measurements and calculations.

• Understand and be able to use the basic operations of an organic chemistry laboratory including gravity & vacuum filtration, liquid-liquid extraction, distillation, reflux, recrystallization, drying of solids and solutions, and the theories behind these techniques.

•Know the significance of pKa values in experimental steps.

• Identify and assess the purity of organic compounds using analytical techniques including melting point, thin layer chromatography (TLC), IR (*v.i.*[1]), NMR (*v.i.*), and gas chromatography (GC).

• Deduce organic structures using spectroscopic methods: especially infrared (IR) and

[1] *Latin* vide infra (see below)

nuclear magnetic resonance (NMR) spectroscopy.

- determine molecular formulas from structures, molecular mass (using the Rule of 13), and other sources of information.

- be able to deduce hydrogen deficiency index (HDI) from a molecular formula and use this in structure determination.

For NMR spectroscopy, students will be able to:

- understand the fundamental theory of 1-dimensional proton NMR analysis

- understand the concepts of equivalent and non-equivalent hydrogens.

- understand the effect of structure on chemical shift and coupling constants.

- demonstrate awareness of the regions of the NMR spectrum where various key protons are found.

- calculate chemical shifts for substituted alkanes and aromatics using tables.

- demonstrate how to utilize integrals for structure analysis

- construct splitting diagrams ("trees") and be able to measure coupling constants from an NMR spectrum, or predict coupling constants and trees from a structure.

- recognize and know how to test for exchangeable hydrogens in a molecule.

- identify the peaks that correspond to the solvent and to the internal reference (TMS).

-deduce unknown structures and fully assign an NMR spectrum to the structure.

For IR Spectrosopy, students will be able to:

- explain the basic principles of IR spectroscopy.

- identify and explain factors that influence the strength and frequency of an IR peak.

- assign key peaks in an IR spectrum.

- determine which peaks are most diagnostic in making an assignment of structure using IR.

- record an IR spectrum.

- deduce unknown structures and fully assign an IR spectrum to the structure.

• Students will be able to follow a detailed experimental procedure, and construct a flow diagram to illustrate it.

• Students will be able to explain the theory behind the operations performed, including being able to explain deviations from the theoretically optimum results (which is the usual case), and suggest improvements to the procedures employed.

• Students will be able to depict and explain detailed chemical mechanisms for all laboratory reactions employed in Chem 113A, and for related reactions.

• Students are expected to keep contemporaneous notes – They will demonstrate the ability to maintain a proper lab notebook.

•Students will be able to construct a lab report that includes an analysis of the data collected, and discussion of the outcomes and answers to open questions associated with the Experiment.

Program Learning Outcomes (PLO) – SJSU Department of Chemistry

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 *a*cquire, 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.

Tentative Course Calendar:

A Calendar showing the experiments, report due dates and lab quizzes appears at the end of this Greensheet. In addition, note the following EXAM dates:

Midterm Exam	October 14 (90min during lab session)
Final Exam	December 9 5:15pm to 7:30pm

The dates on the Calendar are tentative and is subject to modification (however, the Midterm, Final Exam and due date for the last experiment will not change). Any changes will only be announced during a online lab meetings (no notice will be sent by email). It is your responsibility to keep aware of the Calendar, especially due dates of reports, quizzes and exams. You must be present on all quiz and exam dates - do not plan any travel or other absences on these dates.

All exams and quizzes will be given using Canvas. Some answers may be submitted through Canvas directly - in addition, in some cases your instructor may require that some answers be written on paper, and a scan or photo be submitted for grading. The exams will only be available on the dates and times specified for your section. Your Lab Reports will be uploaded to Canvas. Note that on dates that Reports are due, a short online quiz based on the lab will also be given. Quizzes and Exams on Canvas will use the Respondus Lockdown Browser along with video monitoring.

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 at

http://www.sjsu.edu/senate/docs/S12-3.pdf

Attendance Policy / Lab Makeup

NOTE that University policy F69-24, "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."

Your attendance is **mandatory** for ALL Chemistry 113A lab meetings – for all sessions. The semester Calendar is set to provide adequate time for students to complete all of the

experiments. Keeping on time with the Calendar requires both your participation and preparation before each lab meeting – don't fall behind!

Grading Policy

GRADING (see below for numerical breakdown and percentages)

Laboratory Reports: Six reports will be due for Chem 113A. Information on general report format and submission is provided in Canvas Files under Reports. However, each report may require specific details. Your instructor will describe what is needed. Two reports (for Experiments C and F) will be given as video reports.

Reports submitted to Canvas Assignments will be analyzed by turnitin.com and an analysis of your report will be provided to me. If you have issues with accessing Canvas, let your instructor know in advance of the first due date.

During all Quizzes and Exams, the following are required:

You must have Respondus Lockdown Browser and/or Monitor installed on your device

-you will be required to have a cell phone or computer camera monitor while you take the exam.

Lab Quizzes: At the start of the sessions when reports are due (6 total quizzes; see the Calendar), a short Lab Quiz based on the Experiment will be given on Canvas. The written or video report must also be submitted to Canvas "Assignments" before the start of the lab period in which the report is due.

Midterm Exam: a midterm exam based on material covered to that point will be given.

Final Exam: a comprehensive Final Exam will involve all topics covered in Chem 113A.

Note that the final 113A grade is based on a *conglomerate* of the individual graded items Thus, if you have a somewhat low grade on one item, you can make it up with a better grade of another item. The course grades are given on a "+/-" system.

All quizzes and exams are open to the printed version of the Pavia textbook ONLY- electronic versions (eBooks) are not allowed during quizzes and exams. You are **required to bring your OWN copy for the exams.** Sharing of books during tests is not allowed. Using any device which has access to the Web is prohibited during any 113A quiz or exam.

Grading Information:

The grades for this course will be assigned as "plus/minus." The points and percentages of each type of graded itemsis as follows:

6 laboratory reports (80pts ea)	480 points total[a] (48%)
6 laboratory quizzes (20pts ea)	120 points total[b] (12%)
Midterm	150 points (15%)
Final exam @ pts	250 points (25%)

Total possible for 113A 1000 points possible

The overall course grade will generally follow the following correlations:

A+ = 100-97%	A = 96-93%	A- = 92-90%
B+ = 89-87%	B = 86-83%	B- = 82-80%
C+ = 79-77%	C = 76-73%	C- = 72-70%
D+ = 69-67%	D = 66-63%	D- = 62-60%
F = ≤59% Unsatisfactory		

Late reports beyond a deadline are subject to a late penalty - medical absences with documentation will be considered. The report is considered fully "turned-in" when all required items are submitted. Late reports for Experiments will be accepted only up until graded reports are returned to the class (i.e. late reports will not be accepted once I return the graded reports to the rest of the class).
The report for Experiment F must be received by the due date given by your instructor. ***No reports will be accepted after the last posted due date for your section!***

All experiment reports are **mandatory**: if no report is turned in, up to 10 points will be deducted from the total points accumulated for the semester.

In order to estimate your current grade in this course and progress towards your course grade, keep track of scores on Canvas Grades for all graded assignments (quizzes, lab reports, midterm) as the semester progresses. Add the points you obtained and divide by the total points scored up until that time to determine your % of points to that date. Compare the % to the table to estimate your current grade standing.

Bear in mind that the final course grade is based on multiple components so you have different opportunities to make up a low score. Especially towards the second half of the semester, monitor your accumulated points and %, because that will indicate to what extent you will need to obtain points to attain a desired course grade. A word of advice is that you should not rely on the last report and/or the final exam to make up for a low point total!

Scores for individual reports, quizzes and exams will be posted on Canvas Grades, but for security reasons, course grades cannot be posted there. You will see your Chem 113A grade posted on your mySJSU transcript when it is determined. Final course grades are not posted, sent by email, or given over the phone.

Use the 113A Calendar and Table of Activities below to plan your time accordingly. Preparation for the lab will help you immensely to keep on schedule.

"A minimum aggregate GPA of 2.0 SJSU Studies (R, S, & V) shall be required of all students as a graduation requirement." To see full text, review University Policy S11-3 at

http://www.sjsu.edu/senate/docs/S11-3.pdf

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 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course

related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

LABORATORY SAFETY

NOTE: even though you will not work in an actual laboratory, chemical laboratory safety is an important course objective for Chem 113A. Read the following section on safety rules. On the first day of lab, you will be required to take a Chemistry Safety Quiz and pass it with a score of 80% or higher.

COVID-SPECIFIC SAFETY INFORMATION

(This is not required for this section of Chem 113A. However if you come to campus for any other reason, you must complete the instructions below)

All students registered for a College of Science (CoS) class with an in-person component must view the CoS COVID-19 Training slides and the SJSU Phased Adapt Plan website and electronically sign the CoS Acknowledgement form located in the associated Canvas course prior to the second class meeting for CoS classes. Failure to comply with the safety requirements outlined in the CoS COVID-19 Training slides, the SJSU Phased Adapt Plan, and outlined by instructors and TAs for in-person classes will be grounds for dismissal from class or laboratory and building or field site. Please review this material as needed throughout the semester, as updates will be implemented as changes occur (and posted to the same links).

As you are aware, the COVID-19 pandemic has led to many restrictions on our daily lives. The rules you have become familiar with extend into working situations and conduct in a laboratory, but there are other lab-specific rules that you will learn and must comply with for your own safety and for everyone else in the lab. Your instructor will go into the full list of rules in detail, but here is a summary:

1) You should have received an email with a link and instructions to the SJSU College of Science COVID-19 Safety Training and Adapt Plan. Before your first class meeting, you must take the training (a Powerpoint of ~12 minutes) and sign the acknowledgement form. Your instructor will be provided with a list of students who have signed the acknowledgement, and will refuse entry to anyone who has not completed the training and submitted this form.

2). Masks, as described in the Safety Training, must be worn at all times when in the Science Building (as well as other buildings on campus). This policy is for everyone's safety and will be strictly enforced. Masks must cover the nose and mouth completely - anyone who does not comply with this policy will be asked to leave the building and may be disenrolled from Chem 113A.

3) wash your hands frequently: in the hallway of the Science Building are waterless soap dispensers; soap for handwashing is available in the Science labs and the bathrooms

4) As described in the COVID Safety Training, you should not come to class if you feel ill or if you come in close contact with someone who has an active case of COVID-19. Get tested as soon as possible. If you test positive for COVID-19, inform your instructor immediately. Fill in and submit the form on page 9 of the COVID Adapt Plan.

If you have not received the link and information on the SJSU COS COVID-19 Safety and Adapt Plan, contact your instructor as soon as possible.

Rules specific for Chem 113A appear below – learn these and be prepared to answer questions on the safety quiz.

Science 135 and Science 139

The designated rooms for Chem 113A are Science 135 (occupancy up to 3 students) and Science 139 (occupancy up to 4 students). Except for the instructor, the capacity of each room can never exceed the stated number. You will be assigned to one of the rooms, and you may not enter the other room unless this is required by the Experiment. Movement within each room is also controlled to maximize social distancing.

For each section, a maximum of 7 students may be in lab at any one time, divided among Science 135 and 139. Each student will be assigned to a specific seating location in one of the labs, designated by

General Safety Rules for Chem 113A

Knowing how to work safely in an organic chemistry laboratory is paramount for Chem 113A, and for anyone working in a laboratory setting. For your safety and of your classmates, you will be required to understand and follow safety policies that are described below.

Before beginning any lab work, the following items must be completed:

1) Attend the Safety Lecture

2) Read and sign the statement on Chemical Safety Rules for Chemistry Labs (go to this site – copy the URL if necessary):

https://www.sjsu.edu/chemistry/Forms/Safety%20Sheet%20for%20Teaching%20Laboratories_02262020.pdf

3) View the Chemistry Safety film on YouTube and sign the viewing voucher

4) Read and learn the additional rules for organic labs below.

5) Take the Lab Safety Quiz on Canvas and obtain a score of 80% or better; retake the quiz if score is <80%.

All of the above conditions are required.

In addition to the points covered above, the following rules are emphasized in this lab:

1. ***AS SOON AS ONE PERSON BEGINS WORK IN THE LAB, YOU MUST ALWAYS WEAR SAFETY GOGGLES, EVEN IF YOU ARE NOT DOING ANY WORK YOURSELF!!!*** (over your eyes, not on your forehead!) If you see a fellow student not wearing eye protection, you are obligated to remind them to protect their eyes.

2. Be aware that we will be using some flammable solvents, do not have **any** flames when you (or someone else in the room) are handling these

3. Similarly, treat all acids, bases, and reagents as potential hazards. Avoid skin contact with all of these, and treat any contact immediately. If you have a spill, never leave it unattended - let the instructor know.

4. Dispose of all glassware in the special bins, not in the trash cans! This includes broken glass, as well at expendable items such as pipettes and melting point capillaries.

5. Some experiments require special safety precautions - these may be found in the protocols or given by the instructor. Always enter these into your procedure/flow scheme section in your notebook (this is another reason to read ahead and to be on time at the start of each lab)

6. You are absolutely required to follow any instructions provided by the instructor related to procedures and/or safety. Failure to do so will result in your grade or result in immediate disenrollment from this class (see statement below).

7. Everyone working in the lab is expected to conduct yourself in a professional manner; no horseplay or unsafe actions are allowed.

8. Gloves are required for many experiments. These are always available from the Stockroom for a cost. You may prefer to purchase a box of disposable gloves to use during the semester.

9. Minimize contact with all liquid and solid chemicals, and DO NOT intentionally breathe in any vapors. Where practical, do experimental work in the hoods.

10. Note in the safety rules, that legs and feet must be covered - no shorts, sandals or open toed footwear allowed. You will not be allowed to work in the lab. I suggest you bring a change of clothes on lab days.

101. If you are not sure, ask!!

Failure to comply with proper procedures and prescribed safety cautions shall subject the student to disciplinary action.

1) Any student who engages in unauthorized experimentation, or who seriously disregards safety, thereby endangering self or others shall be withdrawn immediately from the class with a grade of F.

2) Any student who shows persistent disregard for safety may have his/her grade lowered, and may risk being withdrawn with a final grade of F.

Special rules of safety and conduct apply when using the Bruker Fourier 300 NMR and the GC and other instruments. These will be provided by the instructor.

With preparation and organization, it is possible to complete all of your lab work during the scheduled lab period. In general, no lab work will be permitted outside of the scheduled lab times. Usually, the only situation where this may be allowed is in cases of illness and for which you provide verification by your doctor (see makeup policy above). However, if you miss more than a few lab periods during the semester, it may be difficult to complete the course**. In any case, under NO circumstances are you to perform any laboratory work for 113A outside of the scheduled lab time without my written permission.** Any student found performing unauthorized lab work for 113A may be disenrolled from the class.

Additional Safety Policies for Chem 113A:

Visitors: No visitors are allowed in the lab at any time. Access to Science 135 and 139 are only for enrolled students who are specifically assigned to each room.

Cell Phones, music/video/game players: These may not be used in the lab. Unless you have an emergency, turn off cell phones and make your calls before or after class. DO NOT make calls when an experiment is in progress!

Computers: computers may be used during lab experiments, but this is not recommended since chemicals may spill on them and damage your device. During quizzes and exams, use of computers will be restricted using the Lockdown Browser (your instructor will provide information).

While working in the lab, distractions must be kept to a minimum - this includes listening to music and watching videos. Headphones or earbuds may not be used - you must be able to hear instructions or emergency alarms.

Notebook Preparation for Experiments ("Prelabs"):

Some Experiments will require the preparation of a "PreLab" notebook before you can begin the Experiment. The Prelab is an outline of the planned Experiment and is intended to prepare you before you begin experimental work. Your instructor will inform you of which Experiments require a prelab and on how to format your notebook.

Equipment (for in-lab sections only)

A printed copy of current Stockroom policies will be provided to you when you check-in to a locker. These policies will be rigidly enforced so read them immediately - ask the Stockroom staff if you have any questions.

You will be assigned an individual locker of equipment for your use during this course. You will be checked into your locker during the first lab period by the instructor, and sign an acknowledgement that you have all of your equipment. ***Your check in day is the only day when missing or broken/chipped items will be replaced at no charge.*** After the first day, you are responsible for maintaining all of the contents of your drawer. If you lose or break any item, you will be assessed a replacement fee at the end of the semester, so be careful with your equipment! It is possible to complete this course with a relatively small bill for expendable items: it is also possible to end up with a >$100 bill due to loss or breakage. At the end of each lab period, make sure you have collected all your locker items before leaving and lock your drawer!

When you check in, you will be given a coded check out pad from the storeroom. You may use this pad to check out additional equipment from the storeroom which may be required for a particular experiment. **Note that certain items checked out must be returned the same day to avoid a late fee.** Remember, the code on your pad is assigned

ONLY to you, don't lose it, or someone else can check out items which will be charged to your account.

At the end of the semester, you must clean out your locker, replace all broken equipment or glassware, and have the instructor sign the check-out form. If this process is not completed fully, you may be charged a fee to clean and refurbish your locker. If you drop or do not complete Chem 113A, you must check out of your locker to avoid a $50 or more check out fee. All checkouts must be done by the last lab day of your lab meeting (see the Calendar); no checkouts will be done after this date. An exception is if you contact COVID-19 and cannot continue the lab. Contact your instructor as soon as possible.

Chemical Safety (CHEM 120S) – All Students

CHEM 120S Chemical Safety Seminar is a required course for all chemistry majors and minors. The Safety Training (not CHEM 120S) is a requirement/prerequisite for CHEM 180/298, if working in a wet/chemical research lab.

•Emergencies and Building Evacuations

If you hear a continuously sounding alarm, or are told to evacuate the building by an Emergency Coordinator, walk quickly to the nearest exit (out the lab door and go to the nearest exit of the Science Building). Take your personal belongings as you may not be allowed to return. Follow the instructions of the Emergency Coordinators. Be quiet so you can hear instructions. Once outside, move away from the building. Do not return to the building unless the Police or the Emergency Coordinator announces that this is permissible.

Additional University Policies – All Students (SJSU Policies)

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

Make sure to review these university policies and resources.

The topics include the following:

General Expectations, Rights and Responsibilities of the Student
Dropping and Adding
Consent for Recording of Class and Public Sharing of Instructor Material
Academic integrity
Campus Policy in Compliance with the American Disabilities Act
Student Technology Resources
SJSU Peer Connections
SJSU Writing Center
SJSU Counseling and Psychological Services

The Calendar below is subject to change. However, the midterm or final exam dates will not change.

Chem 113A Organic Laboratory Calendar - Fall 2021
TuesThurs ONLINE SECTIONS

Your instructor will provide additional details.

Chem 113A TuTh Labs Fall 2021

Semester Week	Monday	Tuesday	Wednesday	Thursday	Friday
1				Aug 19 NO LAB	Aug 20
2	Aug 23	Aug 24 1st TuTh lab 1A	Aug 25	Aug 26 1B	Aug 27
3	Aug 30	Aug 31 2A	Sept 1	Sept 2 2B	Sept 3
4	Sept 6 LABOR DAY	Sept 7 3A	Sept 8	Sept 9 3B	Sept 10
5	Sept 13	Sept 14 4A	Sept 15	Sept 16 4B	Sept 17
6	Sept 20	Sept 21 5A	Sept 22	Sept 23 5B	Sept 24

7	Sept 27	Sept 28 6A	Sept 29	Sept 30 6B	Oct 1
8	Oct 4	Oct 5 7A	Oct 6	Oct 7 7B	Oct 8
9	Oct 11	Oct 12 8A1	Oct 13	Oct 14 MIDTERM	Oct 15
10	Oct 18	Oct 19 8A2	Oct 20	Oct 21 8B	Oct 22
11	Oct 25	Oct 26 9A	Oct 27	Oct 28 9B	Oct 29
12	Nov 1	Nov 2 10A	Nov 3	Nov 4 10B	Nov 5
13	Nov 8	Nov 9 11A	Nov 10	Nov 11 VETERANS DAY (no lab)	Nov 12
14	Nov 15	Nov 16 11B + 12A	Nov 17	Nov 18 12B	Nov 19

15	Nov 22	Nov 23 13A + 13B	Nov 24 NO CLASSES	Nov 25 THANKS-GIVING	Nov 26 METABO-LISM DAY
16	Nov 29 DEC 6 Last Day Fall Semester No Lab DEC 6 Last Day Fall Semester No Lab	Nov 30 14A	Dec 1	Dec 2 Last TuTh Lab 14B	Dec 3

Check your Greensheet for the date and time of your Final Exam!

Chem 113A TuTh ONLINE Section

Activity #	A session	B session
1	Introduction, safety information & quiz	Intro to spectroscopic techniques, background; molecular formulas/IHD/Rule of 13
2	Exp A: Extraction & Analysis of a Plant Extract	Using molecular weight, elemental analysis
3	Exp A: continued	IR spectroscopy
4	Exp A Report Due & Quiz; Exp B: Gas Chromatography – Analysis of an Unknown Alcohol Mixture	H NMR a (chemical shift, integral, coupling constants)
5	Exp C; Using IR and NMR to idenfity unknown structures	H NMR b
6	Exp B: Report Due & Quiz; Exp C: In-class exercise	Using IR and H NMR to assign structures

7	Exp D: Synthesis and Identification of an Unknown Ester	Practice unknown problems using IR and NMR
8	A1: Exp C Report Due & Quiz; A2: Exp D: continued	Unknown problems with IR, NMR and organic reactions
	MIDTERM – both A and B groups	
9	Exp E: Quinine from Cinchona Bark	H NMR coupling constants and coupling trees
10	Exp D Report Due & Quiz; Exp E: continued	Analysis of the H NMR of Eugenol and Quinine
11	Exp E: continued	Unknown problems
12	Exp E Report Due & Quiz Exp F: Identification of an Unknown Compound	Exp F unknown strategies
13	Spectroscopy Review	Spectroscopy Problems
14	Exp F Report Due and Quiz; Tba, review for final	TBA, review for final