

# San Jose State University, Chemistry Department

## CHEM 9

### Organic Chemistry Laboratory

Fall 2019

**Instructor:** Rose Wang`

**Office:** Sci 140 (I will hold my office hours in DH 503 and Sci 154, please see below)

**Office Hours:** ♦ Tue: 1:25 -2:25 pm in DH 503 (if DH503 is not available, I will use DH 507);

♦ Thur: 2:10 – 2:30 pm in Sci. 154;

♦ Fri: 12:20 – 1:00 in Sci. 154

♦ By appointment (for the time after Fri. lab ends)

**Email:** [wang932@yahoo.com](mailto:wang932@yahoo.com) and [xiao.wang@sjsu.edu](mailto:xiao.wang@sjsu.edu)

**Phone:** 408-924-4997 (please use email instead of using the phone, I check my yahoo email almost every day)

**Class time:** Sec. 3: Th 2:30 pm – 5:20 pm; Sec. 4: F 9:30 am – 12:20 pm; Sec. 5: F 1:00 pm – 3:50 pm

**Classroom:** SCI 154

**Prerequisite:** Chem. 8 (If you drop Chem. 8 you must also drop Chem. 9)

**General 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.

#### **Learning Objectives:**

- ♦ To understand and apply basic techniques used in the organic laboratory for preparation, purification and identification of organic compounds.
- ♦ To learn the major techniques used in organic chemistry laboratory include melting point determination, extraction, chromatography, infrared spectroscopy, distillation and chemical characterization tests.
- ♦ At least one organic compound will be synthesized.
- ♦ Calculation of reaction yield for relevant lab experiments will be practiced.
- ♦ To develop the ability to analyze the given procedures of an experiment and suggest or recommend improvements.
- ♦ To conduct the practices of laboratory investigations safely by following the safety rules learned.
- ♦ To 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 Text and Lab Manual** (Yes, both are needed! Because the principles are in the textbook, and some lab procedures are in the text, and some procedures are in SJSU lab manual. Prelab and Report sheets are in SJSU lab manual):

♦ **Chem. 9 Lab Manual.** Available at DH 20 sold by Chemistry Student Club ([you must buy this, since many blank lab reports and some lab procedures are in this manual!](#))

♦ **Hart, Craine, Hart and Vinod, Organic Chemistry Lab Manual - A Short Course** (Suggested to use either 12<sup>th</sup> Edition or 13<sup>th</sup> edition.) You can buy a used book for 12<sup>th</sup> ed. or share the books within students. [Also you could](#)

buy online textbook in different websites. One of the website 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. **For each experiment, you need to read both text and lab manual. Please see the last page for the reading information.**

### **Other Equipment/Material Requirements:**

- ◆ From Instructor: [Green sheet with Lab Schedule, Locker Inventory Card.](#)
- ◆ From the Service Center (SCI 150): [Equipment Pad, Price List \(available upon request\), and Service Center Procedure Sheet \(online\):](#)  
[http://www.sjsu.edu/chemistry/Documents/Service%20Center%20Procedures%20and%20Policies%20for%20SCI%20Building\\_101717.pdf](http://www.sjsu.edu/chemistry/Documents/Service%20Center%20Procedures%20and%20Policies%20for%20SCI%20Building_101717.pdf)
- ◆ From Department: [Department Safety Sheet \(it is online also in lab manual, please go over it before the safety quiz\)](#)  
[http://www.sjsu.edu/chemistry/Documents/Safety%20Sheet%20for%20Teaching%20Laboratories\\_053118.pdf](http://www.sjsu.edu/chemistry/Documents/Safety%20Sheet%20for%20Teaching%20Laboratories_053118.pdf)

### **Organization:**

A **Tentative Schedule of Experiments** is on last page, listing the tentative scheduling of experiments from the 12<sup>th</sup> and 13<sup>th</sup> text (HCHV), **along with assigned reading materials in the text, the pre-lab due date and report due dates (both Pre-Lab Sheets and Report Sheets are in the Chem. 9 SJSU Lab Manual, so you must buy the SJSU lab manual!)** The tentative schedule is subject to change. Start from this semester, I wrote TO DO LIST (instruction) for each experiment that show up in your lab manual, I will also upload these instructions on Canvas. The theory behind a particular experiment will normally be covered briefly in the lab lecture time before the experiment. **The student is expected to read and understand the assigned sections prior to the allotted lab period for that experiment. At the beginning of the period students should turn the prelab to me** unless otherwise instructed. **There will be a question and answer period and perhaps more detailed instructions regarding the experiment shall be given. Reports shall be submitted as scheduled also at beginning of the lab** unless otherwise instructed (see the schedule on last page). **The overall grade shall depend primarily on all lab reports and worksheets (500 points), a midterm exam (200 points) and a final exam (300 points). Please see details in grading policy part.**

**Modification of Procedures:** To make Chem. 9 labs safer and less toxic, we modified procedures for some experiments. I showed in new lab manual that we started using this semester. Sometimes, the instructor will modify procedures from HCHV - these will be announced in class and/or in **lab manual, or in email I send to you.** Be sure to follow the modified procedures - and to alter your report accordingly.

### **Reports:**

Lab reports shall be due at the **beginning (means first 10 minutes)** of the lab period of the due date unless otherwise instructed (see Tentative Schedule of Experiments on the last page. **Lab reports consist of the following:**

1) Prelab – There are **two parts** of prelab.

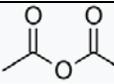
◆ **Prelab Part 1: completed PRELAB QUESTIONS in your SJSU Chem. 9 lab manual.**

◆ **Prelab Part 2: While you read the lab materials in HCHV text and SJSU lab manual, you need to write PRELAB IN LAB NOTEBOOK!** Prelab in notebook should have:

- A) Purpose and principle
- B) **Reagent table with hazardous information (see a table next page as an example)**
- C) Simple procedure
- D) Safety (personal and community safety) that includes wearing lab attire, goggles, and gloves, etc.
- E) Waste disposal information.
- F) **Items you need to check-in.**

You need to tear two parts of the prelab and submit it to me in person at the beginning (first 10 minutes) of the lab period. **The pre-lab exercises will account for about 40% to 50% of the report grade.** You may not begin the experiment unless these are turned in with all questions answered.

Here I give you an example of reagent table with hazardous information in first experiment (you need to fill appropriate blanks):

Chemical name	Chemical structure	m.p. if it is a solid	b.p. if it is a liquid	Flash Pt *	Diamonds** (hazardous information)	Explanation for diamonds(hazardous information)	Literature resource
Salicylic acid							
Acetic anhydride		-73.1°C (liquid at room temp.)	139.8 °C	<b>49°C</b>		Toxic; quite flammable; a little reactive; no water with it.	Wikipedia NFPA 704
Concentrated sulfuric acid							
aspirin							

\*The *flash point* is the lowest temperature at which vapors of a volatile material will ignite, when given an ignition source. \*\* Diamonds can be easily found in Wikipedia. You could use color pencils at beginning.

### Why do we emphasize on doing a good prelab?

- A) It will help you understand more about the lab.
- B) It will help to eliminate the accidents in the lab.
- C) It will help you to finish the lab on time.

For this course (chem. 9), we don't need to use carbon copy notebook.

2) **Lab Report Sheet – They are in your SJSU Chem. 9 lab manual. Laboratory reports shall be due at the beginning of the period of the due date (see Schedule of Experiments on last page) unless otherwise instructed. Sometimes I allow the lab report to be due at end of the lab. Please answer all questions, tear out pages from the lab manual, and **submit it to me in person**. **Tardiness will have a corresponding deduction up to 50% of the points allotted**. **More than one week late report will not be accepted nor graded.****

### When you submit the report to me, please include all of the following:

- A) Your answered report questions
- B) Two Parts of your Prelab (yes, **you need to re-submit them for grading**)
- C) Your original data sheet (that means you need to record the original data in your notebook and let me sign before you leave). Please turn this page to me as one of the report part.
- E) If we have a worksheet, please turn it to me together with a report. We have three worksheets in whole semester.

3) Any product or material purified in the experiment should be in a clean vial labeled as follows:

Your Name, Date

Name of the Substance

Melting Point/Boiling Point (*if applicable*)

Weight, in grams, % yield (*for a dry substance*)

Tare (weight of the vial, cap, and label)

◆ **If your report includes the data of someone else, you must reference the person who supplied the data.** Failure to do so will be considered plagiarism and will be handled accordingly.

NOTE that University policy F69-24 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 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:**

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

**Reports: 50%** (500 pts for Pre-Lab, Lab Reports, and Worksheets, see the table below)

**Midterm: 20%** (200pts, **R, F, Oct. 17, 18 – subject to change with notice**)

**Final Exam: 30%** (300pts, **Section 3: Wed., 12/11, 2:45 - 5:00 pm;**  
**Section 4: Tue., 12/17, 7:15 - 9:30am;**  
**Section 5: Wed., 12/11, 12:15 - 2:30 pm)**

<b>Lab Points:</b>		Prelab	Lab Report	Work Sheet
	Safety Quiz		10	
lab 1	Synthesis of Aspirin	20	25	20
Lab 2	m.p. Determination	20	25	
Lab 3	Recrystallization	20	25	
Lab 4	Extraction	30	30	20
Lab 6	Distillation	20	40	20
Lab 7	IR	20	20	
Lab 8	TLC	20	25	
Lab 9	Aldehydes & Ketones	20	30	
Lab 10	Preparation of Soap	20	20	
Total		190	250	60
Total Points	<b>500</b>			

Individual scores shall be translated into letter grades and it is the letter grades which shall be averaged according to the weighting scheme above; this is done so that you will always have a clear idea of where you stand in the course.

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

**A<sup>+</sup> ≥ 97.0%   A ≥ 92.0%   A<sup>-</sup> ≥ 90.0%   B<sup>+</sup> ≥ 86.0%   B ≥ 82.0%   B<sup>-</sup> ≥ 80.0%**

**C<sup>+</sup> ≥ 75.0%   C ≥ 65.0%   C<sup>-</sup> ≥ 60.0%   D<sup>+</sup> ≥ 56.0%   D ≥ 52.0%   D<sup>-</sup> ≥ 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.)

◆ **You must take the final exam to pass the course.**

◆ **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.**

### **Classroom Protocol:**

Because this is a laboratory class, and one in which we work with hazardous materials, **coming to lab PREPARED AND ON TIME are an essential elements for success and safety in the course.** **If you come unprepared and/or are tardy such that you missed the safety discussion, you may be asked to leave and given a grade of fail for that particular experiment.** If you come to the lab late 2 to 15 minutes, instructor will take points off for the tardiness. If you come to the lab more than 15 minutes late, you cannot do the experiment! **No cell phones or use of ear buds with any devices will be allowed in the laboratory.** **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 the experiments.**

**Laboratory Safety:** Please find Department policies regarding safety in teaching labs in our lab manual or on the chemistry website:

[http://www.sjsu.edu/chemistry/Documents/Service%20Center%20Procedures%20and%20Policies%20for%20SCI%20Building\\_101717.pdf](http://www.sjsu.edu/chemistry/Documents/Service%20Center%20Procedures%20and%20Policies%20for%20SCI%20Building_101717.pdf)

**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. **Anyone who seriously or persistently disregards safety shall be withdrawn from the class with a grade of F.**

**Safety Goggles must be worn all the times as long as an experiment is still going on in the lab room and/or students have not put the wastes away and have not cleaned the glassware.** Your instructor will announce when everyone could take off the goggles, and then we will use the time to do discussions for the lab report and next lab after all students are done for the experiment. **No open flame (no Bunsen burner) should be used when we use organic solvents,** such as acetone, dichloromethane, ether, alcohols, etc. **In the lab, you should wear the clothes that cover my torso; wear long pants to cover whole legs; wear the shoes that cover all of your feet. No eating, no drinking in the lab room.** If you spill small amount of chemicals in the hood, in balance pan, or in your bench, you have to clean it up immediately. For the large spill, you have to report to instructor immediately, and let safety person to clean it up. **When pouring waste into a hazardous waste disposal container, you should read the label to ensure it is the correct container; check to make sure there is room in the container, if not, you should let the lab service technician know, and wait until they provide the empty waste bottle. Please do not pour the waste to an almost full waste bottle to make it overflow. Please put the lids on waste containers after you use them. When you dilute acid, you should add acid to water.** After you finish the lab, you have to clean up glassware, clean up your bench, put the glassware away, and do the report. **When you wear gloves, please don't use your hand to touch your face, your clothes, your book, your report, etc. since your gloves might be contaminated with chemicals.** For more safety rules, please read the Department Safety Policies. You have to understand all safety rules before you start the lab work.

**Attendance:** Because most presentations by the instructor will be done at the beginning of the period, you must attend laboratory regularly *and on time*. **No work is permitted during the presentations. STUDENTS WILL NOT BE ALLOWED TO WORK IF THEY ARRIVE AFTER THE PRELAB LECTURE HAS BEGUN.**

**Attendance is mandatory** in this laboratory course. Absence without a documented medical reason will result in a fail for that experiment. **There are only three sections of chem. 9 (two on Friday, and one on Thursday), and the lab is set up specifically for each experiment, so the make-up work should be on the same week! You are allowed to do make up work ONCE during the semester on the same week.** For example, if you cannot do experiment on Friday, you could do experiment on Thur. afternoon if you let me know earlier. I may allow for emergencies and other complications in life. **Please show me the emergency evidence, such as a doctor's note, a traffic citation, etc.**

There will be adequate time for *the well-prepared students* to complete the work during scheduled hours. In other words, if you don't do preparation well, you may not have enough time to finish the experiment. So please do your best to read the materials, finish the pre-lab questions, and to ask questions during the office hours.

**Service Center:** Your instructor does not make Service Center policy. However, the Service Center is essential to the smooth operation of our already overburdened laboratory facilities. Therefore, any student who behaves in an abusive, belligerent, or confrontational manner toward the Service Center personnel shall be considered to be disrupting the class and will face academic and/or administrative sanctions according to University Policy #41301 (d) and (k).

### **General Expectations, Rights and Responsibilities of the Student Policy:**

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arise. Please check University Policy S90-5 for more information. More detailed information on a variety of related topics is available in the SJSU catalog. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

### **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.

### **University Policies**

**Dropping and Adding:** Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness (it states in what condition you can repeat the class), etc. Refer to current semester's Catalog Policies 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 at

[http://www.sjsu.edu/provost/services/academic\\_calendars/](http://www.sjsu.edu/provost/services/academic_calendars/). The Late Drop 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 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>, requires students to obtain instructor's permission to record the course.

- ◆ “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 recording 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.”
  - Please inform instructor prior to using the recording device.
  - 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 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 is available at <http://www.sjsu.edu/studentconduct/>.

**During an exam, students should put pencil pouches, cell phones, books, notes, any pieces of paper, etc. into your backpacks and zip your backpacks. Graphing calculators are NOT allowed in exam except you ask instructor to switch it with other students. I will assign the seats for exams to avoid cheating; but the main purpose of assigning seats is to give students enough time in the exams. During the exam time, head phones or other devices in ears are not allowed, except for the prescribed hearing aids. While taking exams, the following actions are not tolerated: whispering, talking, transferring information to another student, casual glances at your neighbor's paper, providing or receiving assistance, consulting unauthorized materials, etc. During the exam, when you need to leave the room, we will use the similar rules as test centers: be sure there are NO cell phone, NO pieces of paper, etc. in your pocket, you have to give me your test paper, you have to write down your leaving and coming back times to be sure that you use the reasonable amount of time.**

### **Consequences of academic dishonesty:**

- ◆ A report of the violation to Chemistry Department Chair and the office of Student Conduct and Ethical Development.

◆ You will receive points deduction for your test and/or you may receive an F grade on the work involved; this may also result in an “F” in the course.

## **Campus Policy in Compliance with the American Disability 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 the office hours. Presidential Directive 97-03 at [http://www.sjsu.edu/president/docs/directives/PD\\_1997-03.pdf](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 (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability.

## **Accommodation to Student’ Religious Holidays**

San Jose State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances required 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 at <http://www.sjsu.edu/senate/docs/S14-7.pdf>.

## **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 forty-five 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 practice. Other course structures will have equivalent workload expectations as described in the syllabus. 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 labs, completing assignments, etc. More details about student workload can be found in University Policy S12-3 at <http://www.sjsu.edu/senate/docs/S12-3.pdf>

## CHEM 9: TENTATIVE LAB SCHEDULE (Fall 2019)

Tentative schedule is subject to change with fair notice

Date	Topic	Exp. # in HCHV	Reading Pages from HCHV text and SJSU lab manual	Prelab Due	Lab Reports Due
Wk 1: 8/29-30 (Mandatory)	Check in, Greensheet Safety Video				
Wk 2: 9/5 -6 (Mandatory)	Safety Quiz Lab 1: Synthesis of Aspirin	exp. 21 (p319-326) (Macroscale)	Text: Macroscale on vi Intro (viii-x) page 319-326 and p 221	Prelab 1	
Wk 3: 9/12- 13	Lab 2: Melting Point	exp. 1 (p 1-10)	Text: Page 1-5	Prelab 2	Lab Report 1 & Worksheet 1
Wk 4: 9/19 -20	Lab 3: Recrystallization	exp. 2 (p 11-13)	Text: part 1 and 2, Page 11-13. Read procedure in SJSU Manual	Prelab 3	Lab Report 2
Wk 5: 9/26-27	Lab 4*: Extractive Separations	exp. 4 (p 33-36)	Text: Page 33-36. Read Procedure in SJSU Manual	Prelab 4	Lab Report 3
Wk 6: 10/3 - 4	1) Lab 4 (Continued) 2) Set up Fermentation for distillation labs		Please find fermentation exp. in lab 6 or at end of lab 5 in SJSU lab manual	none	none
Wk 7: 10/10 - 11	Lab 6-1: Simple Distillation	exp. 3 (p23 – 28)	Text: Page 23-28 & Read Procedure in SJSU Manual	Prelab 6	Lab Report 5
<b>Wk 8: 10/17- 18</b>	<b>Mid-Term (To over everything except distillation)</b>				
Wk 9: 10/24 - 25	Lab 6-2: (Continued) Fractional Distillation			none	none
Wk 10: 10/31 - 11/1	Lab 7: Dry lab Infrared Spectroscopy	exp. 25 (p369 – 372)	Text: Page 369 - 372 Read SJSU lab manual	Prelab 7	Lab Report 6 & Worksheet 3
Wk 11: 11/7 - 8	Lab 8: Thin Layer Chromatography (Analgesics)	exp. 6B (p59 – 64)	Text: Page 59-64 Read Procedure in SJSU Manual	Prelab 8	Lab Report 7
Wk 12: 11/14 - 15	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	Lab Report 8
Wk 13: 11/21 - 22	Lab 10: Synthesis of Soap	exp. 29 (p409 – 414)	29B (pp 409-414);	Prelab 10	Lab Report 9 Lab Report 10 (turn it early)
<b>Wk 14: 11/28 - 29</b>	<b>Holiday. No Lab</b>				
Wk 15: 12/5 - 6 (Mandatory)	Check-Out Day				Lab Report 10
<b>Wk 16: 12/9-13</b>	<b>(WED. 12/11) FINAL: SECTION 5, 12:15 – 2:30 pm</b> <b>(WED. 12/11) FINAL: SECTION 3, 2:45 – 5:00 pm</b>				
<b>Wk 17: 12/16-20</b>	<b>(TUE. 12/17) FINAL: SECTION 4, 7:15 – 9:30 am</b>				

\*Lab 4 is extremely difficult lab. I will put Lab 4 (extraction) on Canvas or give you email. The procedure online will have colors, it will help you to make this difficult lab a little easier.

Important dates: 1) **Tue., 9/3** Last day to drop courses without record. 2) **Tue. 9/10** Last day to add to courses 3) **Wed., 9/18** Enrollment census date. 4) **Fri. 11/15** Last day to withdraw for Fall. 5) **Fri. 12/20** Grades due from faculty