San José State University  
Chemistry Department  
Spring 2015-CHEM 9  
ORGANIC CHEMISTRY LAB

Course and Contact Information

Instructor: Dr. Helena Wee
Office Location: DH 605
Telephone: (408) 924-5292
Email: helena.wee@sjsu.edu
Office Hours: M T 800-930 or by appointment
Class Days/Time: F 8:30-1120
Classroom: SCI 154
Prerequisites: CHEM 8

Course greensheet can be found on the SJSU Canvas learning management system course website: [http://www.sjsu.edu/at/ec/canvas/](http://www.sjsu.edu/at/ec/canvas/).
You are responsible for regularly checking with the messaging system through MySJSU (or other communication system as indicated by the instructor) to learn of any updates.

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 Objectives:

- To understand and apply basic techniques used in the organic laboratory for preparation, purification and identification of organic compounds.
- To learn and employ the major techniques used in organic chemistry laboratory for analyses such as melting point determination, extraction, chromatography, infrared spectroscopy, distillation and chemical characterization tests.
- At least one organic compound will be synthesized.
- Calculate reaction yield for relevant lab experiments will be practiced.
- 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 of the organic chemistry behind everyday observations such as the action of soap, or application of color dyes on variety of fabrics.

Required:

Texts/Readings


• Chem 9 SJSU Lab Manual, Spring 2015. Available at DH 20 sold by Chemistry Student Club

Other equipment / material requirements:

• From instructor-Locker Inventory card
• From the Service Center (SCI 150) - Equipment Pad, Service center procedure sheet and Price list (available upon request).

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

Organization: A Tentative Schedule of Experiments is provided in the Chem 9 SJSU Lab Manual. It includes a listing of the tentative scheduling of experiments from the text (HCHV), along with assigned chapter sections and questions, and report due dates. The schedule is subject to change. The theory behind a particular experiment will normally be covered briefly the week before the allotted lab period in order to lay groundwork for the assigned reading. 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 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 (see below). The overall grade shall depend primarily on the individual lab reports, a midterm exam and a final exam, as explained below.

Modification of Procedures: Frequently, the instructor will modify procedures from HCHV - these will be announced in class and/or handouts will be provided. Be sure to follow the modified procedures - and to alter your report accordingly.

Reports: Laboratory reports shall be due at the beginning [1st 15 min] of the period of the due date (see Tentative Schedule of Experiments). Lab reports consist of the following:
1. **Pre-lab Exercises** - these will be collected at the beginning of the lab period in which you are performing the experiment and will account for 50% of the report grade. You may not begin the experiment unless these are turned in with all questions answered.

2. **Lab Report Sheet** – the date for submission is found in the Tentative Schedule of Experiments and is collected at the first 15min of the lab period of the due date. Tardiness will have a corresponding deduction of 10% of the points allotted.

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

<table>
<thead>
<tr>
<th>Your Name, Date</th>
<th>Name of the Substance</th>
<th>Melting Point/Boiling Point (if applicable)</th>
<th>Weight (in grams of product), % yield</th>
</tr>
</thead>
</table>

- 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.

- Lab reports are due at the beginning of the lab period on the day indicated in the schedule below. Reports turned in after the beginning of lab but prior to 3:00 PM the day before the next lab meeting will have 10% deducted from the grade that would otherwise be received. Reports will not be accepted after 3:00 PM the day before the next lab meeting (grade of fail).

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 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**

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

- Reports: [500pts] 50%
- Midterm: [200pts] 20% (Friday, March 20, 2015 – subject to change with notice)
- Final Exam: [300pts] 30% (Monday, May 18, 2015 - 0945-1200)

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. Points for each lab report are listed on the syllabus.

100% – 90.0 % - A+ to A-  89.9% - 70.0% - B+ to B-  69.9% - 60.0% - C+ to C-
59.9% – 50.0% - D+ to D-  below 50.0 % - F

Also, I reserve the right to raise the grade of any student by one third of a unit (e.g. B to B') for consistently outstanding laboratory work.
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 essential elements for success and safety in the course. If you come unprepared 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.*

Attention to the laboratory work is essential for safety reasons, no cell phones or use of ear buds with any devices will be allowed in the laboratory.

Laboratory Safety: Department policies regarding safety in teaching labs are on the chemistry web site:

http://www.sjsu.edu/chemistry/docs/Safety_Sheet_IIc.pdf

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

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 (lockers must be kept closed during presentations). Attendance is mandatory in this laboratory course. Absence without a documented medical reason will result in a fail for that experiment. There is only one section of the course, and the lab is set up specifically for each experiment, so there can be no make-up work. There will be adequate time for the well-prepared student to complete the work during scheduled hours.

Service Center: Your instructor does not make Service Center policy. However, the Service Center is essential to the smooth operation of our overburdened laboratory facilities. Therefore, any student who behaves in an abusive, belligerent or confrontational manner toward the Service Center personnel may 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 arises. See University Policy S90–5 at http://www.sjsu.edu/senate/docs/S90-5.pdf. More detailed information on a variety of related topics is available in the SJSU catalog, at http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html. 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.
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 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/. 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 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.”
  - 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/.

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 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 (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 at http://www.sjsu.edu/senate/docs/S14-7.pdf.
# CHEM 9: Tentative Schedule for Spring 2015

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Experiment # in HCHH Lab Manual</th>
<th>Reading pages from HCHH Lab Manual</th>
<th>Prelab due</th>
<th>Lab reports due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/23</td>
<td>Check-In, Safety Video</td>
<td></td>
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<tr>
<td>1/30</td>
<td>Lab 1A: Synthesis of Aspirin</td>
<td>21 (pp319-26) (macroscale)</td>
<td>Intro(viii-ix) &amp; pp 319-326</td>
<td>Prelab 1A</td>
<td></td>
</tr>
<tr>
<td>2/6</td>
<td>Lab 1B: Melting point</td>
<td>1</td>
<td>1-6 (pp 1-5)</td>
<td>Prelab 1B</td>
<td>Worksheet 1: Stoichiometry</td>
</tr>
<tr>
<td>2/13</td>
<td>Lab 2: Recrystallization</td>
<td>2</td>
<td>1,2 &amp; 5 - Macro scale (pp 11-13,16)</td>
<td>Prelab 2</td>
<td>Lab 1</td>
</tr>
<tr>
<td>2/20</td>
<td>Lab 3: Extractive Separation (Continued)</td>
<td>4 (macro)</td>
<td>1-3 &amp; 4 Macro scale (pp 33-39);</td>
<td>Prelab 3</td>
<td>Lab 2</td>
</tr>
<tr>
<td>3/6</td>
<td>Lab 4: Isolation of Caffeine from Tea</td>
<td>5A, Handout</td>
<td>Part A(pp 47-49); Handout</td>
<td>Prelab 4</td>
<td>Lab 3</td>
</tr>
<tr>
<td>3/13</td>
<td>Lab 5: Distillation: Separation &amp; Purification of Organic</td>
<td>3, Handout</td>
<td>1(pp 23-28); Handout</td>
<td>Prelab 5</td>
<td>Lab 4</td>
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<tr>
<td>3/20</td>
<td>Mid-Term Exam</td>
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<tr>
<td>3/27</td>
<td><strong>Spring Break</strong></td>
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<tr>
<td>4/3</td>
<td>Lab 6: Dry lab Infrared Spectroscopy</td>
<td>25A, Handout</td>
<td>A (pp 369-372); Handout</td>
<td>Prelab 6</td>
<td>Lab 5</td>
</tr>
<tr>
<td>4/10</td>
<td>Lab 7: Thin layer Chromatography (Analgesics)</td>
<td>6B (B.3)</td>
<td>Intro, A1(pp 59-60); B1 (pp 61-63); and Handout</td>
<td>Prelab 7</td>
<td>Lab 6</td>
</tr>
<tr>
<td>4/17</td>
<td>Lab 8: Dyeing Fabrics</td>
<td>24: 3,5 and 6</td>
<td>1-6(pp 351-359); Handout</td>
<td>Prelab 8</td>
<td>Lab 7</td>
</tr>
<tr>
<td>4/24</td>
<td>Lab 9: Reactions of Aldehydes &amp; Ketones</td>
<td>15</td>
<td>A 1,2; B1,4,5; C 1,2, Handout</td>
<td>Prelab 9</td>
<td>Lab 8</td>
</tr>
<tr>
<td>5/1</td>
<td>Lab 10: Synthesis of Soap</td>
<td>29 Handout</td>
<td>29A(pp 409-413); Handout</td>
<td>Prelab 10</td>
<td>Lab 9</td>
</tr>
<tr>
<td>5/8</td>
<td>Check-Out Day</td>
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<tr>
<td><strong>5/18</strong></td>
<td>(MONDAY) <strong>FINALS- 945-1200</strong></td>
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