CHEM 9
Organic Chemistry Laboratory
Spring 2013

Dr. Helena Wee
Office:  DH 605
Hours:  W,F 830- 945  or by appointment
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MIDTERM: March 22, 2013        FINAL EXAM: May 15, 2013

Pre/Corequisite:  Chem 8
Required:
•SJSU Chem 9 Lab Manual – maybe purchased at DH20 (basement;cash only)
•Course Greensheet & Syllabus.  Available in D2L to be printed by students

On the first meeting,
  • From the instructor, the following forms to read, o r fill in and turn in:
    Forms after Laboratory Safety instructions & video
    Department Safety Sheet
    Locker Inventory Card
  • From the Service Center (S-150) you should obtain:
    Equipment Pad
    Service Center Procedure Sheet [Price List - available upon request]

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 22, 2013 – subject to change with notice)
  Final Exam:  [300pts] 30%  (Wednesday, May 15, 2013 - 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-          59.9% – 50.0% - D+ to D-
  89.9% - 70.0% - B+ to B-          below 50.0 % - F
  69.9% - 60.0% - C+ to C-

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. Because this is a laboratory class, and one in which we work with hazardous materials, coming to lab prepared is an essential element for success and safety in the course, and if you come unprepared you may be asked to leave and given a grade of fail for that particular experiment.
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:
COURSE LEARNING OUTCOMES FOR Chem 9:
- Students will learn and apply basic techniques used in the organic laboratory for preparation, purification and identification of organic compounds.
- Students will 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.
- Students will synthesize at least one organic compound will be synthesized and identify the corresponding alteration in the functional groups.
- Students will correctly calculate reaction yield for relevant lab experiments.
- Students will analyze the given procedure of an experiment and suggest or recommend improvements.
- Students will apply safety rules in the practice of laboratory investigations.
- Students will develop better understanding of the organic chemistry behind everyday observations such as the action of soap, or application of color dyes on variety of fabrics.

Organization: A Tentative Schedule of Experiments is provided, listing 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>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point/Boiling Point (if applicable)</td>
<td>Weight(in grams of product), % yield</td>
</tr>
</tbody>
</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 5:00 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 5:00 PM the day before the next lab meeting (grade of fail).

Laboratory Safety: Anyone who seriously or persistently disregards safety shall be withdrawn from the class with a grade of F. Any student who behaves in an abusive, belligerent or confrontational manner toward the Service Center personnel may face academic and/or administrative sanctions.

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.

Drop Policy: You should familiarize yourself with the current University drop policy as described in the Schedule of Classes. Also, if you drop at any time after you have been checked in (lab locker and equipment pad assigned), you must check out and return the equipment pad to the service center or pay a $50 fine.

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).

Academic Integrity: Your own commitment to learning, as evidenced by our enrollment at SJSU, and the University’s Academic Integrity Policy 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 Policy on Academic Integrity can be found at http://sa.sjsu.edu/student_conduct
ADDENDUM TO ALL CHEMISTRY DEPARTMENT GREENSHEETS
(Except Chem 291 Sections) Revised January 2008

CHEMICAL SAFETY – all courses
Chem 120S is a required course for all chemistry majors and minors and a prerequisite for all Chem 180/298 research.

EMERGENCIES AND EVACUATIONS – all courses
If you hear a continuously sounding alarm, or are told to evacuate by Emergency Coordinators (colored badge identification), walk quickly to the nearest stairway (end of each hall). Take your personal belongings, as you may not be allowed to immediately return. Follow instructions of Emergency Coordinators. Be quiet so you can hear. Once outside, move away from the building. Do not return to the building unless the Police or Emergency Coordinators announce that you may.

DISABLED STUDENTS – all courses
Campus policy in compliance with the Americans with Disabilities Act:
"If you need course adaptations or accommodations because of a disability, or if you need 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 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their disability."

ACADEMIC INTEGRITY STATEMENT – all courses (from the Office of Student Conduct and Ethical Development):
"Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University's Academic Integrity Policy 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 policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct.

LABORATORY SAFETY – all laboratory courses
You should read the safety section of the SJSU Catalog under Chemistry Department (page 121 in the 2006/08 Catalog). Note in particular: “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.”
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Experiment # in HCHH Lab Manual</th>
<th>Reading sections</th>
<th>Prelab due</th>
<th>Lab Report due</th>
<th>Lab Rep Pts (500 total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/25</td>
<td>Check-In, Safety Video</td>
<td></td>
<td>Keep record on blank space</td>
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</tr>
<tr>
<td>2/1</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>
<td></td>
</tr>
<tr>
<td>2/8</td>
<td>Lab 1B: Melting point</td>
<td>1</td>
<td>1-6 (pp 1-5)</td>
<td>Prelab 1B</td>
<td>Worksheet 1:</td>
<td>20pts</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Stoichiometry</td>
<td>yield calc</td>
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<tr>
<td>2/15</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>
<td>60pts</td>
</tr>
<tr>
<td>2/22</td>
<td>Lab 3: Extractive Separations</td>
<td>4 (macro)</td>
<td>1-3 &amp; 4 Macro scale (pp 33-39)</td>
<td>Prelab 3</td>
<td>Lab 2</td>
<td>40pts</td>
</tr>
<tr>
<td>3/1</td>
<td>Extractive Separations (Continued)</td>
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<tr>
<td>3/8</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>
<td>20pts</td>
</tr>
<tr>
<td>3/15</td>
<td>Lab 5: Distillation: Separation &amp; Purification of Organic Liquids</td>
<td>3, Handout</td>
<td>1(pp 23-28); Handout</td>
<td>Prelab 5</td>
<td>Lab 4</td>
<td>40pts</td>
</tr>
<tr>
<td>3/22</td>
<td><strong>Mid-Term Exam (to cover everything except Lab 5; date subject to change with notice)</strong></td>
<td></td>
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<td><strong>200 pts</strong></td>
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<tr>
<td>3/29</td>
<td><strong>Spring Break</strong></td>
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<tr>
<td>4/5</td>
<td>Lab 6: Infrared Spectroscopy (IR)</td>
<td>25A, Handout</td>
<td>A (pp 369-372); Handout</td>
<td>Prelab 6</td>
<td>Lab 5</td>
<td>50pts</td>
</tr>
<tr>
<td>4/12</td>
<td>Lab 7: 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>
<td>40pts</td>
</tr>
<tr>
<td>4/19</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>
<td>40pts</td>
</tr>
<tr>
<td>4/26</td>
<td>Lab 9: Rxns 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>
<td>40pts</td>
</tr>
<tr>
<td>5/3</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>
<td>50pts</td>
</tr>
<tr>
<td>5/10</td>
<td><strong>Check-Out Day</strong></td>
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<td>Lab 10</td>
<td>40pts</td>
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<tr>
<td>5/15</td>
<td>(Wednesday) <strong>FINALS- 945-1200</strong></td>
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<td><strong>300pts</strong></td>
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Lab Report pts consist of 50% prelab and 50% lab report sheet.  
Midterm+ Finals +WS/LR TOTAL: 500 + 500 = 1000

*With at least one week notice, the instructor may substitute one experiment for another.