Organic Chemistry Laboratory I – Fall 2015  
Chemistry 341

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Phone: 453-2758  
Email: kplunkett@chem.siu.edu  
Office Hours: MW 11-12

Required Text: *Experimental Organic Chemistry* - Gilbert & Martin (5th Ed.)  
Supplemental Text: *Organic Chemistry* – McMurry (8th Ed.)  
Lectures are Mondays at 4 pm in Neckers 240 and Laboratories are in Neckers 203/205

Course website: [https://online.siu.edu](https://online.siu.edu)

**D2L Website**

Course content will be available the D2L website at [https://online.siu.edu](https://online.siu.edu/). Students may need to refer to this website frequently to receive important information. The website can only be accessed by students registered for the course. The website will contain the following information: Folders, Lecture Notes, Pre Lab & Report Questions, Quiz Answer Keys, Class Information and a link to the website for electronic report submission and textbook, Calendar, Grades, and other information.

**PreLabs** consist of assigned questions that are found in the textbook and on pdfs located on D2L. The prelab will be due at the beginning of the laboratory period and is worth (10 Pts). There is no prelab or written introduction for the first laboratory, molecular models.

**Worksheet based laboratory reports** will consist of the following sections:

1. **Introduction (10 Pts.):** *A written introduction is due the week after the experiment is completed*
   a) Goal  
b) Significance  
c) Theory - New Techniques  
   - Characterization Methods
   (Do not discuss techniques or characterization methods that were covered in previous reports)

2. **Worksheet (20 Pts.):** Answer the assigned questions and provide the requested data.  
   (Note – there is no introduction or prelab for molecular models, the worksheet is worth 40 pts)

**Formal laboratory reports** will consist of the following sections:

1. **Introduction (20 Pts.):**
   a) Goal  
b) Significance  
c) Reaction Scheme  
d) Reaction Mechanism  
e) Theory - New Techniques  
   - Characterization Methods
   (Do not discuss techniques or characterization methods that were covered in previous reports)

2. **Procedure (10 Pts.):** The procedure should be of sufficient detail that someone skilled in the art of chemistry could successfully repeat the experiment.

3. **Relevant Data (10 Pts.)**

4. **Results & Discussions (30 Pts.):** Describe important results and observations and draw inferences from this data.

5. **Conclusions (10 Pts.):** Summarize and indicate the significance of the laboratory.

6. **Questions (10 Pts.):** Answer the assigned questions from the text.  
   *(Sections 1-5 should be typed with double spacing. Hand drawings are acceptable)*
Cheating will result in a zero for the assignment. Any instance of cheating will be reported to the Department Chair and the Dean. To prevent plagiarism you must submit an electronic copy of your introduction/reports to http://www.turnitin.com as a MS Word or pdf file prior to the deadline (usually the Friday after the paper copy is due to your TA). Scanned documents will not be accepted by Turnitin.com. Your written introductions or reports will be compared to an extensive database of reports from previous semesters, as well as the web and scientific journals. If you are a new turnitin user, then you will need to setup a student profile prior to joining the class. The class ID and password will depend on your section, which are listed in the table below:

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<tr>
<th>Chem. 341</th>
<th>Class ID</th>
<th>Password</th>
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<tr>
<td>Section 001</td>
<td>8388600</td>
<td>Neckers01</td>
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<tr>
<td>Section 002</td>
<td>8388604</td>
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<td>Section 009</td>
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TA Evaluations will be based on the opinions of the TA in consultation with the instructor. Important things we will consider include safety, general preparedness, laboratory technique, cleanliness, laboratory notebooks, product purity, and knowledge of the procedures and theory. The TA's will evaluate each student several times during the course of the semester. TA's will warn students of significant deficiencies in their performance so that they may improve during the semester. However, the TA evaluation grades will be kept confidential and may be used at the end of the semester to help students that demonstrate significant improvement and/or excellent technique over the course of the semester.

Product Evaluations will be based on the quantity and quality of the recovered product. It is more important to have a pure product than a high yield. Products should be placed in clearly labeled screw-cap vials with the following information: 1) Date; 2) Your Name; 3) TA's Name; 4) Product Name; and 5) Yield in grams. Any omitted information will result in a zero.

Quizzes will be given during most laboratory periods after a brief lecture by the TA, and before the experiment begins. Questions will be based on the prelab readings, weekly lectures, and practical knowledge gained from previous laboratory experience. Each quiz will contain questions from the previous, as well as the current laboratory.

Absentee Policy: A maximum of two laboratories may be missed over the course of the semester. The first missed lab will receive an excused grade (avg score of other labs added to total), provided the absence is excused. The second missed lab will be given a zero and students that miss more than two labs will be given a failure for the course. You will not be allowed to repeat a laboratory. There will be no make-up quizzes since the lowest score out of 12 is dropped. We will not accept partially completed reports.

Excused Absence: Students must provide a reasonable excuse or they will receive a zero. In rare circumstances, a student may be allowed to make-up an excused absence in another
laboratory session; make-up’s are generally not allowed when the laboratory section is doing a different lab due to safety and hazardous waste considerations. All make-up’s will be at the discretion of the instructor and in consultation with the TA. If at all possible, please inform your TA in advance when you will miss a laboratory, this will greatly enhance your chances of being excused. After you return from an absence, you must fill out an “excused absence request” form and have it signed by your TA and myself; you may get this form from the website.

**Handing Late Work:** Prelabs must be handed in on or before the day that the lab is performed and will NOT be accepted late. Each week your TA will assign a due date for the reports, typically the beginning of the next laboratory session. Reports that are handed in to the instructor or the TA by Monday at 5pm after the due date will receive a 20% deduction from the total score. Reports that are one week late will receive a 25% deduction. Any work handed in more than one week after the due date will be reduced from 30% to 100% at the discretion of the TA, and in consultation with the instructor. Each TA has a mailbox in Neckers 224, please note that this office typically closes at 4pm. *Written work will not be accepted after Friday, May 6.*

**Laboratory Safety:** Organic chemistry is inherently dangerous since we work with glassware and flammable solvents. Explosions and spills do happen and people do get hurt; however, these incidents are very rare when proper precautions are taken. Therefore, it is extremely important that all students and TA’s follow well-defined safety protocols. Such protocols are outlined in the textbook (p. 15 - 23). **Goggles or safety glasses must be worn at all times when experiments are in progress.** Furthermore, the instructors and TA’s will remind students of important safety precautions before each laboratory. *However, there is no substitute for preparation and common sense!*

**Hazardous Chemical Disposal:** Most of the chemicals that we work with in the laboratory must be disposed of in properly labeled waste containers. We are legally required to make an accurate account of the contents of these waste containers, which are found in the laboratory hoods. Thus, it is very important that you place your waste in the appropriate container; always double-check the waste container before you add waste.

**Health Problems:** It is important that you notify the instructor and TA of any health related issues at the beginning of the semester. Particularly if you are prone to serious allergies or Asthmatic attacks; *you should withdraw from this course if you are pregnant.*

**Laboratory Cleanliness:** Each laboratory period the TA will assign two people as "clean-up supervisors". It is the responsibility of these supervisors to ensure that the entire laboratory is cleaned and prepared for the next laboratory section. Thus, the supervisors must wait until the other students have completed their work and the TA inspects the laboratory before they may be excused. If the laboratory is closed and does not pass inspection by the instructor or the laboratory coordinator, the supervisors will have ten points deducted from their TA evaluation grade and the TA will be reprimanded. All students will be supervisors at least once per semester. The TA should provide a checklist with specific cleaning duties for each lab.

**Laboratory Notebook:** All students are required to have a laboratory notebook where they will record experimental data and procedures. This notebook should be bound, not spiral, so that the pages are not easily removed. TA’s will periodically check the notebook as part of the TA evaluation/Notebook grade. Notebooks play an important role in science by archiving valuable data and procedures. A good notebook includes detailed procedures and observations that allows someone skilled in the art of organic chemistry to reproduce those results.

**Late Entry:** Requests for late entry or for changing your lab section must be processed in the Chemistry Department office, Neckers 224. Typically these are only approved when space is available in the requested section (20 students maximum).
Drop Dates: September 06 - last day to withdraw to be eligible for a refund. November 01 - last day to withdraw.

Note: There will be No permission to withdraw after the drop date, unless you qualify for an incomplete. To be eligible for an incomplete the student must be passing the course. Please research the policy for incomplete and late withdrawal.

Grading

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<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>PreLabs</td>
<td>10 x 10</td>
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<tr>
<td>Worksheet Based Laboratory</td>
<td>5 x 30</td>
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<tr>
<td>Formal Laboratory Reports</td>
<td>4 x 90</td>
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<td>TA Evaluations</td>
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<td>Notebook</td>
<td>4 x 10</td>
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<tr>
<td>Product Evaluations</td>
<td>4 x 5</td>
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<tr>
<td>Quizzes</td>
<td>11 x 10</td>
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<tr>
<td>Final Exam</td>
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<td><strong>Total</strong></td>
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The following grades are guaranteed with these point totals: 900 - A; 800 - B; 700 - C; 600 - D.

Emergency Procedures: Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available BERT’s website at www.bert.siu.edu, Department of Safety’s website www.dps.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

Laboratory Schedule:

Week 1 (Aug. 24 – 28) – (No Labs)
Reading: Gilbert & Martin - p. 1 - 25

Week 2 (Aug. 31 – Sept 04) – Check-In & Recrystallization
Reading: Handout; Gilbert & Martin - p. 93 -125

Week 3 (Sept 7 - 11) – Extraction (No lecture on Monday, Sept 7 – Labor Day)
Reading: McMurry - p. 74-133; Quiz 1

Week 4 (Sept 14 - 18) – Molecular Models
Reading: Gilbert & Martin - p. 153 - 171; Quiz 2

Week 5 (Sept 21 - 25) – Chromatography
Reading: Gilbert & Martin - p. 179 – 186, p. 188 - 196; Quiz 3

Week 6 (Sept 28 – Oct 02) – Distillation & Gas Chromatography
Reading: Gilbert & Martin - p. 127 - 145, p. 196 - 206; McMurry - p. 100 - 101; Quiz 4
LABORATORY DIRECTIONS FOR CHEMISTRY STUDENTS

SAFETY:
1. Note the locations of the fire extinguishers, eyewash station, and emergency shower.
2. You must wear safety goggles or safety glasses at all times in the lab. Regular prescription glasses are not sufficient protection. Do not wear contact lenses.
3. Wear proper clothing in the lab; do not wear shorts or loose clothing. Confine long hair. Footwear should completely cover the top of the foot—no sandals.
4. Wear protective gloves as directed by the TA.
5. No eating or drinking in the lab at any time. No smoking in the building.
6. Assume that all unfamiliar chemicals are dangerous, and handle them accordingly.
7. Report any accidents to the TA immediately. Chemicals spilled on your skin or in your eyes should be flushed with copious amounts of water. The TA will arrange for transportation and medical attention.
8. Experiments in which flammable, toxic or noxious chemicals are used should be performed in the fume hood as directed by the TA.
9. If a student is pregnant she should notify the TA. Some chemicals have dangerous effects during pregnancy.
10. Regularly check your glassware for chips or cracks; discard broken or chipped glassware in the special containers available in the lab, NOT in regular trash containers.

GENERAL LABORATORY PROCEDURES AND RULES:
1. Only work which is assigned by the TA may be done in the lab. You MAY NOT work without supervision.
2. The TA will provide instructions at the beginning of each lab period concerning waste disposal. Don't dump anything down the drain or put anything in the trash unless specifically told to do so.
3. Discard excess reagents. Never return them into the reagent bottles. Don't put pipets into the reagent bottles.
4. Use distilled water when directed.
5. At the end of each lab period, clean up after yourself. Wipe up spills; re-cap reagents; DO NOT leave trash on the countertops, in the sink or on the floor.

INDIVIDUAL APPARATUS:
1. During the first lab period, check the contents of your locker against the list provided. Immediately replace any missing or broken apparatus. This replacement is FREE ON THE FIRST DAY ONLY. After that, you will have to pay to replace any apparatus that you break or lose during the semester by purchasing the items from the stockroom using a blue slip. You will be billed through the Bursar’s office.
2. Special equipment or apparatus needed for a single lab period may be checked out of the stockroom using a green slip. Return this equipment at the end of the lab period. If it is not returned, you will be charged for it.
3. All apparatus is the property of the Department of Chemistry and Biochemistry and may not be removed from the premises.

I understand that if I fail to check my equipment back in at the end of the semester on or before the last scheduled lab class, I will be billed $20.00 plus any applicable equipment replacement fees. I have read the above rules and agree to abide by them. I understand that if I fail to do this I will not be allowed to participate in the laboratory.