Chemistry 334: Organic Chemistry Majors Laboratory II
Spring 2014, University of Delaware
Syllabus

Instructor: Professor Donald A. Watson
dawatson@udel.edu

Laboratory Coordinator: Dr. Geoffrey Sametz
sametz@udel.edu (questions about the lab should be directed here or to your TA)

Teaching Assistant:

William Reid	Section 11	MTu, 7:00-10:00p, QDH318
Peng Wang	Section 12	MTu, 3:45-6:45p, QDH318
Jennifer Eddy	Section 13	WTh, 12:30-3:30p, QDH318

Website: https://udel.instructure.com/courses/1234619

Grading:

Lab Reports/Notebook	50%
Lab Performance	10%
Lab Practical Exam	20%
Final Written Exam	20%

Approximate Schedule of Labs:

Week (Dates)	Lab
1 (2/10 – 2/14)	No Lab
2 (2/17 – 2/21)	Spectroscopy
3 (2/24 – 2/28)	Ketone Reduction With Carrots
4 (3/03 – 3/07)	Oxone Oxidation Of Borneol To Camphor
5 (3/10 – 3/14)	Grubbs Olefin Metathesis Heck Coupling
6 (3/17 – 3/21)	Suzuki Coupling
7 (3/24 – 3/28)	Aldol Condensation Transfer Hydrogenation
(3/31 – 4/04)	Spring Break—No Lab
8 (4/07 – 4/11)	Reductive Amination
9 (4/14 – 4/18)	Biodiesel
10 (4/21 – 4/25)	Coumarin Synthesis
11 (4/28 – 5/02)	Laboratory Practical Exam
12 (5/05 – 5/09)	Laboratory Practical Exam
13 (5/12 – 5/16)	No Lab

Required Materials:

- Text: None required. Handouts will be provided for each experiment.
- Hard-bound laboratory notebook (see below for details)
- Personal Protective Equipment (PPE): Safety Goggles, Proper Laboratory attire (see below for details)

Lab Handouts
Lab handouts provide a general guide to the experiments described in the lab, often customizing them to the particular equipment we have in the lab. While these are available online at the course website, it is still imperative that you read the assigned material in the text.

Come Prepared
You must come with a notebook, safety goggles and appropriate clothing in order to perform lab work. Goggles must fit flush with your face; protective eyeglasses with side shields are insufficient. "Appropriate clothing" means that your legs and midriff are covered (e.g. no shorts), and that shoes cover the tops of your feet (no sandals, ballet flats, pumps etc.) and have no high heels.
In addition, you must have read the assigned reading and prepared the pre-lab portion of your notebook report. For safety reasons, you could be asked to leave the lab (and receive a zero) should you fail to demonstrate adequate preparedness for safe execution of the experimental procedure.

Notebook/Lab Report (50% of Grade)
You must have a permanently bound notebook (e.g. composition book) rather than a spiral bound one. You do not have to waste your money on an official lab notebook, but we do insist that it is bound so pages do not get lost.
Your instructor will give you more details on keeping the notebook, but realize that the main purpose of a lab notebook is to keep an accurate record of what you did and what you observed in lab.

The notebook will serve as a lab report. The first part of your lab report needs to be written in your lab notebook prior to your arrival to the lab.

Your notebook report should include the following sections**.**

To be completed before lab:
Objective/hypothesis
Balanced reaction equation
Data Table for reagents and product
Summary of safety concerns (e.g. key MSDS information)
Guide to new techniques (include diagrams of apparatus)

To be completed during lab:
Procedure/Observations
Calculations (e.g. yield calculation)
Conclusions

The procedure and observations will be written as steps are performed, and not after the fact. For example, you will take your notebook to the balances and record masses as soon as they are obtained. Data should not be recalled from memory later in the day—it should already be recorded. As soon as a step is performed (e.g. adding a reagent to the reaction mixture; heating the reaction vessel) or a pertinent observation is made (e.g. color change; exotherm or gas evolution noted, etc.) it is immediately recorded in the lab notebook.

One reason for this requirement is that it ensures that you will complete the lab report in a timely manner. More importantly, keeping a complete, up-to-date lab notebook is required to maintain an accurate account of what was performed in the laboratory. In the "real world", lab notebooks are important documents that can be used to settle patent disputes, claims to first discovery, or convict criminals.

PLEASE SEE HANDOUT FOR AN EXAMPLE LAB REPORT

Lab performance (10 % of Grade)
10% of your grade is based on your performance and conduct in lab. Factors include:

- Coming to lab prepared and on time
- Successful completion of the lab
- Quality of results
- Safety
- Cleanliness; lab stewardship

Although quality of results (e.g. yield and purity of your chemical products) is a component of your grade, our emphasis is on learning proper techniques and proper lab conduct. In particular, falsifying data, or giving a nonobjective assessment of your results, will severely impact your grade. It is far better to objectively assess why a result may be sub-optimal than it is to give a false or misleading account of your results.

Your notebook report will include a summary at the end of your write-up for the experiment; no formal lab reports are required. If you are dutifully recording procedure and observations as steps are performed, there should be little work at the end of the experiment required to complete your report. The experiments can be completed on time if you are prepared. You will not be allowed to work beyond the time allotted.

Lab Practical Exam (20% of Grade)
At the end of the semester, you will be given an in-lab practical exam that will require you to demonstrate mastery of basic organic chemistry laboratory skills. Details for this exam will be provided with sufficient time to allow you to prepare for the exam. Each student will be required to complete this practical exam on their own, no group work will be allowed.

Final Exam (20% of Grade)
In addition, there will be a written final exam for this course (held during finals week) that will test your theoretical understanding of organic laboratory principles, including spectroscopy.

Grading
Your instructor will collect your notebook at the end of each lab session to grade your write-up and results. This means you must complete your lab report in the allotted time. Notebooks will be returned to you in time for you to prepare for the following week's lab. These will be picked up from your TA.

Regrades:
All requests for regrades must be submitted in writing within 24 hours of the material being returned. Please note, the entire assignement will be regraded – if grading errors are found the final grades may be higher *or lower* than original score. Also note, photocopies may be made prior to returning exams. If answers are altered, it will be obvious and provable (see below).

Academic Dishonesty:
Academic dishonesty will not be tolerated. Not only is such behavior unethical, but also cheating in this class will result in you not learning material that will be critical to your chosen career path. Please review the University of Delaware's Academic Dishonestly Policy, which can be found at http://www.udel.edu/stuguide/09-10/code.html#honesty.

Plagiarism is as using someone else's words *or ideas* without acknowledgment and most often results from uncited quoting or paraphrasing. Plagiarism is a serious form of academic dishonesty. For more information, please see: http://www.english.udel.edu/wc/student/handouts/plagiarism.html