

Course Information
Fall 2015
Chemistry 211 Lab: Organic Chemistry I Lab

Course: Chemistry 211 laboratory sections meet in room Science 308

Lab Section 01: Mondays 2:00 – 6:00 p.m. Lab Section 02: Tuesdays 2:00 – 6:00 p.m.

Lab Section 03: Wednesdays 2:00 – 6:00 p.m. Lab Section 04: Thursdays 2:00 – 6:00 p.m.

Lab Section 05: Fridays 2:00 – 6:00 p.m.

Lab Instructor: Dr. Allan D. Headley

Office: Science Building Room #337

Office Hours: Wednesdays and Thursdays 11:00 am-12:00 noon

Contact Information: allan.headley@tamuc.edu; phone: 903-468-8106

Lab TAs: Section 001 & 002 (Lynn Graham); Sections 003 & 004 (Gangu Krishna)

Section 5 (Apporva Kasetti)

TA Office Hours: Mondays 1:00pm-2:00pm (Lynn); Tuesdays 1:00pm-2:00pm (Lynn);
 Wednesdays 12:30pm-1:30pm (Gangu); Thursdays 12:30pm-1:30pm (Gangu)
 Fridays 11am-12pm (Apporva)

Text: *Laboratory: A Small Scale Approach to Organic Laboratory Techniques*,
 Pavia/Lampman/Kriz/Engel, 2011, ISBN 978-1439049327

Grading

Your laboratory grade will be based on 9 of your best experimental write-ups (lab reports) out of 10 (80%) if you do not miss more than 5 lectures, otherwise your lab grade will be based on 10 write-ups and spectroscopy problems (20%).

Lab reports (prelab and postlab):	80%
Spectroscopy problems:	20%
	100%

You are required to submit lab reports in a timely manner. You will incur a 10% penalty for every day that your lab report is late; thus, if a lab report is more than 7 days late, you will receive a zero for that report. There will be absolutely no make-ups for laboratory experiments. If you miss a laboratory experiment that will be your dropped laboratory write-up. If you miss more than one laboratory experiment, you will be assigned a grade of zero for that assignment.

See the following website for more details about course withdrawal deadlines:

<http://www.tamuc.edu/admissions/registrar/academicCalendars/>.

Grading will be based on a standard percentage scale: 100-90 = A; 89-80 = B; 79-70 = C; 69-60 = D; 59-below = F. Dishonest scholarship will earn an automatic zero (0) and initiate prosecution to the fullest extent. Incomplete grades may be given only if the student has a current average $\geq 70\%$ and is precluded from completion of the course by a documented illness or family crisis.

Lab Cleanliness

You will be expected to maintain a clean and orderly lab. At the end of every experiment, your bench space and hood space must be cleaned. Any equipment utilized during the experiment must be cleaned as well (balances, rotovaps, etc.). You should ensure that sinks and floors are also clean. If the lab space and equipment that you utilized during the experiment is left dirty and unorganized, you will be penalized 20% on your lab report and quiz associated with that experiment.

Each laboratory report will consist of the following sections:

- I. *Prelab Section – 40 points (due at the beginning of the laboratory)*
A. Title – 2 points B. Objective – 3 points C. Procedure – 15 points
D. Physical Constants/Reagent Data – 10 points E. Safety – 5 points
F. Stoichiometry/Theory – 5 points

- II. *Postlab Section – 60 points (Must be completed by the beginning of the next laboratory period).*
A. Modifications to procedure – 5 points
B. Observations – 15 points (*this sections should be your notes of observations that you make DURING the course of the experiment*)
C. Results – 20 points
D. Discussion – 20 points

LAB ATTENDANCE POLICY

All students are expected to attend class on a regular basis and attendance will be recorded. The Department of Chemistry adheres to the attendance policy set by the University as stated in the most current Undergraduate Catalog. Being late by more than 5 minutes is equivalent to missing a laboratory. You must be on time in order to take an exam. Excessive absence is defined as missing more than 10% of the laboratory sessions without excusable reasons. Excessive absence will be reported to the Dean of the College and the Dean of Students. In addition, according to the TAMU-Commerce Procedure A13.02. Good class attendance will be necessary in order to pass the course.

STUDENT CONDUCT POLICY

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (see Student's Guidebook, Policies and Procedures, Conduct). Any student engaging in disruptive behavior will be dismissed from class on the first offence. A second offence may constitute dismissal from the course.

CHEATING AND OTHER BREACHES OF ACADEMIC CONDUCT

Academic cheating, plagiarism, and other forms of academic misconduct may result in removal of the student from class with a failing grade or may in extreme cases result in suspension or expulsion from the University as described in the "Code of Student Conduct" section of the "Student's Guidebook".

NONDISCRIMINATION STATEMENT

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

STUDENTS WITH DISABILITIES

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce, Gee Library, Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

LEARNING OUTCOMES / COURSE OBJECTIVES

By the end of the semester I intend for my students to have realized a number of objectives.

1. All students must be able to readily identify glassware commonly used in the organic laboratory and know how to properly utilize the glassware.
2. All students must know basics of IUPAC nomenclature of organic molecules.
3. Relate the structure and functional groups found in a given molecule to their physical and chemical properties. This includes learning to predict reactivity of molecules.
4. Learn basic synthetic organic chemistry techniques, such as how to set up reactions, how to monitor the progress of a reaction, how to calculate the amount of starting materials needed and how to calculate percent yields, and how to properly clean glassware at the end of an experiment.
5. Learn basic techniques for the isolation and purification of organic molecules, such as distillation, recrystallization, chromatography (TLC and column), and extraction.
6. Learn how to characterize organic compounds using techniques and instrumentation such as melting point, boiling point, retention factor, ¹H-NMR, ¹³C-NMR, IR, and Uv/Vis spectroscopy.
7. Learn the safety requirements and methods needed to work in an organic chemistry laboratory.
8. Learn how to safely handle, utilize and dispose of chemicals.
9. Learn how to document laboratory experiments, how to maintain a scientific notebook.
10. Know the importance of organic chemistry and its relationship to various other disciplines such as biochemistry and medicinal chemistry and our daily lives.

Tentative Laboratory Schedule

<u>Lab #</u>	<u>Chapter/Topic</u>	<u>Week</u>	<u>Experiments & Assigned Problems</u>
		8/31-9/4	<i>Check-in (2 locks required), Safety material and exam, Laboratory write-up instructions, general lab overview</i>
1	<i>Experiment 1</i>	9/7-9/11	<i>Solubility: Read ALL of Experiment 1. Write the report up as described on pages 12-13, answer questions 1-5 in the report.</i>
2	<i>Experiment 2</i>	9/14-9/18	<i>Crystallization: Read ALL of Experiment 2. Write the report up as described on pages 23-24, answer questions 1-3 in the report.</i>
3	<i>Experiment 3</i>	9/21-9/25	<i>Extraction: Read ALL of Experiment 3. Write the report up as described on pages 31-32, answer question 1 in the report.</i>

4	<i>Experiment 15</i>	9/28-10/2	<i>Read Experiment 5 background information. Read the essay on pages 111-115. Chemistry of Vision Conduct experiment 15. Chromatography: Read ALL of Experiment 15. Answer questions 1-4 in the report. Also answer questions 1 and 3 on page 44 in your report.</i>
5	<i>Experiment 20A</i>	10/5-10/9	<i>Nucleophilic Substitution Reactions: Read ALL of Experiment 20A.</i>
6	<i>Experiment 20B & 20C</i>	10/12-10/16	<i>Nucleophilic Substitution Reactions: Read ALL of Experiment 20B and 20C. Answer questions 1-9 in your report.</i>
	<i>Chapter 12, 15 (lecture textbook)</i>	<i>10/19 - 10/23</i>	<i>Lecture over MS, IR, & UV/Vis spectroscopy.</i>
	<i>Chapter 13 (lecture textbook)</i>		<i>Lecture over NMR spectroscopy</i>
7	<i>Experiment 22</i>	10/26 - 10/30	<i>4-Methylcyclohexene: Read ALL of Experiment 22 Answer questions 1-5 in your report.</i>
8	<i>Experiment 27A</i>	11/2-11/6	<i>Read the essay on page 220 'Green Chemistry', Chiral Reduction of Ethyl Acetoacetate: Read ALL of Experiment 27A. Answer questions 1-3 in your report.</i>
9	<i>Experiment 44</i>	11/9-11/3	<i>Read the essay on page 343 'Local Anesthetics', Benzocaine: Read ALL of Experiment 44. Answer questions 1-5 in your report.</i>
10	<i>Experiment 33A</i>	11/16-11/20	<i>Triphenylmethanol: Read ALL of Experiment 33A. Answer questions 1-5 in your report.</i>
		11/23 – 11 / 27	<i>No labs during Thanksgiving week</i>
		12/1-12/5	<i>Check-out, lab exam</i>