Chemistry 12A Lab Course Information
Section 61, Winter 2018

Instructor: Kevin Sibucao
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Lab Time/Location: 11:30 AM – 2:20 PM, Monday/Wednesday, SC2208
Office Hours: Monday/Wednesday, 3:00 PM – 4:00 PM, SC3 3112

Please refer to Chad Miller's syllabus for information about the lecture portion of the course and for information regarding lab section 62.

Welcome to Chemistry 12A Lab! This course is the first of a three-class sequence in organic chemistry. In the lab portion of Chem 12, we will be learning about the ***synthesis***, ***purification***, and ***characterization*** of organic molecules. You will have the opportunity to perform many techniques that organic chemists use regularly. Compounds that you encounter daily (such as pharmaceuticals like acetaminophen and materials like plastic) were probably made using these techniques.

Course Materials

Required Materials:

1. Lab Textbook: *Experimental Organic Chemistry: A Miniscale and Microscale Approach (Sixth Edition)*
2. OSHA-approved Safety Goggles (Indirect Vent, Z87)
3. Carbonless copy lab notebook: 100- page carbonless copy spiral bound notebook. ISBN: 1429224541
4. Standard lock for lab drawer (or small bike lock) to lock an assigned laboratory drawer.

Recommended Materials:

1. Lab coat
2. Lab gloves (disposable nitrile)

Lab Assessments

Assessments are important for evaluating your understanding of the concepts you have learned. Descriptions of the assessments you will see in Chem 12A lab are given below.

Pre-lab Assignments:
Pre-lab assignments will consist of a worksheet and lab notebook preparation. The pre-lab assignment will be due at the beginning of each experiment. Both will be graded for completeness.

Lab Report:
Lab reports will be due one week after an experiment has been completed. A complete lab report will consist of two parts: copies of your lab notebook pages and an experiment report. The experiment report will either be a written summary or a worksheet. Guidelines for writing a short summary will be provided later in the quarter. ***The first written summary will be eligible for regrades.***

Lab Quizzes:

Two lab quizzes will be given through the quarter (**January 29 and February 14**). Lab quizzes will cover the experiments performed prior to that point. Expect to see questions that test your knowledge of the techniques you performed and any relevant chemical concepts.

Lab Final:
A lab final will be given at the end of week 11 (**March 21**). The lab final will be cumulative but will be weighted more towards the experiments done after lab quiz 2.

Discretionary Points:
One point will be awarded to the class as a whole based on the overall conduct of the lab. A surefire way to get this point is to work safety, listen to directions, and get out of lab on time. This should encourage you to help out your neighbors, especially during lab clean up.

Lab Grade Breakdown:

Assessment	Total Points	Percentage of Lab Grade
Prelabs	30 (5 points each)	11%
Lab Reports	75 (15 points each, lowest dropped)	28%
Lab Quizzes	60 (30 points each)	23%
Lab Final	80	30%
Discretionary points	20 (1 point per lab section)	8%
Totals	265	100%

A few notes about the lab grade:

1. The total number of points awarded is 265 but will be scaled when calculating your final grade for Chem 12A.
2. Your lowest lab report grade will be dropped.
3. Discretionary points are earned by the class.

Course Policies

Please read the following course policies carefully.

1. Please complete prelab assignments before lab. Also, be sure that you have at minimum safety goggles. You will not be able to participate if you do not.
2. If you know you will be missing lab, let me know within the first week.
3. Otherwise, missing a lab for reasons aside from emergencies will result in a zero for that lab.
4. Please don't cheat.

Course Tips

Organic chemistry is notorious for being difficult. Here are some tips of succeed:

1. The first one is obvious. Read the book and go to lecture.
2. Remember your fundamentals; they will carry you far. So much of organic chemistry can be boiled down the fundamentals—especially those you learned in general chemistry. I hope you discover there is a logic behind everything.
3. Ask questions! I became a teacher because I like talking about chemistry all the time. Office hours are also lonely if no one comes…
4. Practice! Do every assigned problem. If you run out of problems, ask your instructor for more.
5. Be able to think in 3D. This is less important for lab, but you will need to be able to think about molecules in 3D for all of organic chemistry. Practice with a model kit.
6. Don't cram.
7. Most importantly—Relax and have fun! I'm here to support you!

Office Hours

My office hours will be Mondays and Wednesday from 3:00 PM – 4:00 PM at SC_3 3112. Also feel free to make an appointment if these times do not work.

I will answer Chem 12A lecture questions; however, lab questions will take priority

Lab Schedule (Subject to Change)

Week	Date	Lab Activity	Reading	Assignment due
1	January 8	Introductions, Lab check-in; Safety orientation. Review		
	January 10	Lab 1: Acid/Base Extraction Part B	Theory: 155 – 163 Procedure: 163 – 168	Lab 1 Pre-lab
2	January 15	MLK Holiday!		
	January 17	Lab 1: Acid/Base Extraction Recrystallization	Theory: 91 – 99 Procedure: 99 – 104	
3	January 22	Lab 1: Acid/Base Extraction Melting Point	Theory: 111 – 115 Procedure: 115 – 117	
	January 24	Lab 2: Thin-layer chromatography: Plate prep	Theory: 179 – 184 Procedure: 185 – 186	Lab 2 Pre-lab
4	January 29	Lab Quiz 1; Lab 2: Thin-layer chromatography: Plate development	Theory: 179 – 184 Procedure: 185 – 186	Lab 1 Report (**WS**)
	January 31	Lab 3: Synthesis of 2-chloro-2-methylbutane (Distillation)	Theory: 53 –55; 235 – 258 Procedure: 473 – 474	Lab 3 Pre-lab
5	February 5	Lab 3: Synthesis of 2-chloro-2-methylbutane (IR Spectroscopy)	Theory: 53 –55; 235 – 258 Procedure: 473 – 474	Lab 2 Report (**WU**)
	February 7	Lab 3: Synthesis of 2-chloro-2-methylbutane (IR Spectroscopy)	Theory: 53 –55; 235 – 258 Procedure: 473 – 474	
6	February 12	Lab 3: Synthesis of 2-chloro-2-methylbutane (IR Spectroscopy)	Theory: 53 –55; 235 – 258 Procedure: 473 – 474	
	February 14	Lab Quiz 2; Introduction to NMR (No wet lab!)	Theory: 235 – 258	
7	February 19	President's Day Holiday!		
	February 21	Lab 4: Dehydration of 4-methyl-2-pentanol (Synthesis)	Theory: 196 – 206; 342 – 346 Procedure: 347 – 348	Lab 4 Pre-lab Lab 3 Report (**WS**)
8	February 26	Lab 4: Dehydration of 4-methyl-2-pentanol (IR)	Theory: 196 – 206; 342 – 346 Procedure: 347 – 348	
	February 28	Lab 4: Dehydration of 4-methyl-2-pentanol (NMR)	Theory: 196 – 206; 342 – 346 Procedure: 347 – 348	
9	March 5	Lab 5: Relative reactivity of alkyl halides	Theory: Lecture material Procedure: Handout	
	March 7	Lab 6: Bromination of (E)-stilbene (Synthesis)	Theory: 258 – 294; 358 – 362 Procedure: 374 – 375	Lab 5 Pre-lab Lab 4 Report (**WU**)

10	March 12	Lab 6: Bromination of (E)-stilbene (IR)	Theory: 258 – 294; 358 – 362 Procedure: 374 – 375	Lab 6 Pre-lab
	March 14	Lab 6: Bromination of (E)-stilbene (NMR)	Theory: 258 – 294; 358 – 362 Procedure: 374 – 375	Lab 5 Report (**WS**)
11	March 19	Lab Exam		
	March 21	Drawer check out and super office hours		Lab 6 Report (**TBD**)
12	March 27	Final Exam		

Notes:

- We will not do acid/base extraction part C.

If an experiment starts on the last page of a given procedure page range, assume we will not do it. Thus, you do not need to prepare your notebook for that part. For example, on p 375, the page ends with the start of the "Microscale Procedure." You need not worry about the "Microscale Procedure."

Student Learning Outcome(s):

*Predict the product of a chemical reaction.
*Apply principles of thermodynamics, kinetics, and equilibrium to organic reaction systems.
*Generate logical stepwise reaction mechanisms.
*Construct molecular structure from spectroscopic data.