

# HUNTER COLLEGE CHEMISTRY DEPARTMENT

## Syllabus for CHEM 121: Essentials of Organic Chemistry Laboratory

Section:	Day:	Time:	Lab Room:
	Instructor:		Email:
		Office Hours:	

### LAB MANUAL

Hart, Craine, Hart, & Vinod, *Laboratory Manual to Accompany Organic Chemistry, A Short Course*, 13<sup>th</sup> ed. (Lecture Text: K Timberlake, *General, Organic, and Biological Chemistry, Structures of Life*, 5<sup>th</sup> ed.)

### LABORATORY LEARNING OBJECTIVES

1. Perform safely, efficiently, and in an organized manner the basic techniques for the separation, purification, analysis, and characterization of organic compounds.
2. Understand the main objective of each experiment before the lab meets.
3. Clearly record, organize, analyze, and report the results of all experiments.
4. Learn to take good experimental notes and collect data, and to write accurate, complete laboratory reports, including interpretive evaluation.
5. Communicate the concepts and results of each laboratory experiment through effective writing and oral communication skills.
6. Know and follow the proper procedures and regulations for safe handling and use of chemicals (Cf. safety quiz)

### GRADING POLICY

Your final lab grade is based on the following elements.

1. Pre-lab Exercises
2. Lab Reports
3. Power Point Presentation (groups of 3/4 with 10 min. presentation and 5 min. Q/A)
4. Lab performance (participation, dexterity in handling equipment, teamwork)
5. Safety quiz given the 2<sup>nd</sup> week of lab based on: <http://vimeo.com/6170550>

Graded Element	Prelab Exercises	Lab Reports	Points
Safety Quiz			20
Lab Performance			80
Experiment Reports*	100	300	400
PPT Presentation			100
<b>TOTAL</b>			<b>600</b>

\*The lowest grade will be dropped

### ATTENDANCE POLICY

Because arriving late is a safety issue, unexcused lateness is not tolerated. If you arrive late without a valid excuse, you will not be allowed to attend the lab. If you have a valid excuse, there is still a penalty as follows.

5 minutes late - 10 pts;      10 minutes late - 20 pts;      15 minutes late - 40 pts

A second infraction will have these penalties doubled; a third infraction is not allowed.

There are NO makeup possibilities for missed labs, although one missed lab will be the one you drop.

### LABORATORY POLICY

All cell phones, pagers, CD players, MP3 players, etc., must be turned off while in the class. They are a distraction, and distractions create safety issues. Any student who disrupts the class will be asked to leave, as this is also a safety issue, in addition to being inappropriate.

On the first day of lab you will be required to have the following items.

- Lab Manual (available at the Hunter College bookstore)
- Safety Glasses (**MUST BE WORN at ALL TIMES in the laboratory whether you are actively working on the lab procedures or not!**)

The lab performance score is a measure of how well prepared you are before each experiment, whether you read and understood the material, and whether you are able to work efficiently and safely and to follow the laboratory procedure for each day.

Note: YOU MUST CLEAN YOUR BENCH AT THE END OF EVERY LAB SESSION.

## ACADEMIC DISHONESTY

Hunter College regards acts of academic dishonesty (e.g., committing plagiarism, allowing plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty and may result in an F for the class. The college is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

## LAB SCHEDULE (The prelab assignment ALWAYS includes reading the experiment for the day in Hart)

Wk*	DATE	Lab #, EXPERIMENT	PRELAB ASSIGNMENTS/COMMENTS
1		<b>Check-In, Safety, Modeling Intro</b>	<b>Prelab reading: Hart, pp viii-xiii.</b> Check -in; Discussion of policies; Safety Matters; Safety video; syllabus; demonstration of molecular modeling kit.
2		<b>#1: Exp. 7: Molecular Models: Part A</b>	<b>Safety Quiz. Prelab reading: Timberlake, pp 446-456. Familiarize yourself with C/H chemical bonding by drawing methane and propane:</b>
3		<b>#2: Exp. 7: Molecular Models: Part B</b>	<a href="http://www.glencoe.com/sites/common_assets/science/virtual_labs/E02/E02.swf">http://www.glencoe.com/sites/common_assets/science/virtual_labs/E02/E02.swf</a> (Note: the picture in Hart on p 80 is really bad quality, so don't bother with it.)
4		<b>#3: Exp. 1: Melting Point Determination</b>	Pure Urea and Cinnamic Acid; 2 Mixtures and 1 Unknown
5		<b>#4: Exp. 2: Recrystallization</b>	<b>Prelab video:</b> <a href="https://www.youtube.com/watch?v=qJLvB6NFnoA">https://www.youtube.com/watch?v=qJLvB6NFnoA</a> Acetanilide in water as solvent (macroscale procedure only).
6		<b>#5: Exp. 3: Distillation</b>	<b>Prelab video:</b> <a href="https://www.youtube.com/watch?v=3pL2X-8-eVk">https://www.youtube.com/watch?v=3pL2X-8-eVk</a> Simple distillation and fractional of toluene/hexane mixture.
7		<b>#6: Exp. 5: Isolation of a Natural Product</b>	Purification, drying and melting point determination. Caffeine only. <b>TOPICS for PowerPoint presentations will be assigned</b>
8		<b>#7: Exp. 14: Alcohols and Phenols</b>	<b>Prelab reading: Timberlake, Sections 13.1 and 13.3</b> Will do only parts 1, 3, 5, 8.
9		<b>#8: Exp. 15: Aldehydes &amp; Ketones</b>	<b>Prelab reading: Timberlake: Sections 14.1 and 14.2</b> Will do only parts A2 and C2.
10		<b>#9: Exp. 13: Alkyl Halides</b>	<b>Prelab viewing:</b> On the Kahn website watch the two videos in the group entitled "Substitution and Elimination Reactions" entitled "SN2 Reactions" and "SN1 Reactions Introduction". Watching "Steric Hindrance" will help you understand it even better, and "SN2 Stereochemistry" would also be good. <b>Prelab:</b> Only question 4. Will do only parts B and C
11		<b>#10: Exp. 21: Synthesis of Aspirin</b>	<b>Prelab reading: Timberlake, Sections 16.3 and 16.4 (cf 16.5)</b> Will do only macroscale procedure.
12		<b>#11: Exp. 6: Chromatography</b>	<b>Prelab video:</b> <a href="https://www.youtube.com/watch?v=J8r8hN05xXk">https://www.youtube.com/watch?v=J8r8hN05xXk</a> Instructor demonstrates part B, students do only part D.
13		<b>PowerPoint Presentations</b>	Group presentations on assigned topics. Final evaluation
14		<b>Check-Out</b>	Teacher Evaluation, Check-Out

\*The dates for various labs overlap due to holidays: