

SUNY COLLEGE AT POTSDAM

Chemistry 341: Organic Chemistry I Lab, Fall 2004

**Instructor:** Martin A. Walker

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**Office Hours:** 11:00 a.m. - 12:00 p.m. Tu  
10:00 a.m. - 11:00 a.m. Th  
2:00 a.m. - 3:00 a.m. F  
and by appointment

**Course Description:** The basic concepts and principles of experimental organic chemistry are introduced. The purpose of the course is to teach the student the fundamental experimental skills as well as the theory behind them. This is accomplished by performing several experiments which teach the skills and then applying these skills in several real experiments. The student is also introduced to the spectroscopic techniques used in organic chemistry such as infrared spectroscopy and NMR.

**Lab Location:** Stowell 314

**Textbook:** Chem 341 laboratory manual, supplemented with handouts.

**Course Objectives:**

1. To provide the student with a better understanding of experimental organic chemistry.
2. To teach some basic concepts and principles behind the experimental techniques.
3. To expose the student to the various spectroscopic techniques such as infrared spectroscopy and NMR.
4. To develop the students' physical laboratory skills and techniques as well as thinking skills so that the techniques learned can be applied to new situations. This includes learning how to observe and record even small changes during an experiment.
5. To introduce certain theoretical concepts through "discovery" in the laboratory.

**Procedure:**

For success in the organic lab, it is absolutely essential that you are prepared when you arrive. This means you need to carefully read the experiment and the theory behind it in advance, design the approach you will take to perform it (such as an outline or flowchart), answer the pre-lab questions, and prepare your lab notebook. Failure to prepare in advance will make the experiment difficult to complete. Your grade will be based on four lab quizzes covering the theory and ideas behind the experiment, your lab notebook, your laboratory journal, and unknowns you work with.

**Information:**

I hope (time allowing) to put practice material on Blackboard and on the web at <http://www2.potsdam.edu/walkerma/chem341L.htm>

Also, I will use email whenever I need to contact you between classes, so please check your email. If you have a problem with this, let me know.

**Lab Notebook**

You should obtain an organic chemistry lab notebook from the bookstore. Write in your name and the other "front matter." Records should be kept according to the rules given in the handout.

**Lab Reports**

There will be three parts to each lab report- these should all be stapled together when handed in.

- (a) Prelab questions (if assigned)
- (b) Lab data sheet with postlab questions
- (c) Carbonless copy pages from the lab notebook

Lab reports will normally be handed in one week after the experiment. See the separate page in this manual for more details on how to organize the notebook write-up.

**Grading:**

Each report will be graded as follows unless otherwise announced: Prelab questions (6 points), lab data sheet & postlab questions (30 points), lab notebook write-up (39 points).

The final grade will be based upon a combination of nine lab reports (75 points each), two NMR assignments (50 points each), three quizzes (50 points each), spectral unknown (50 points), attitude in lab (25 points).

**Honesty:**

Any work you submit as an individual should be your own work; copied material from family, friends, textbooks or the internet will be given a zero grade and may lead to disciplinary action. It is understood that some work does involve a collaborative effort, particularly in the lab; however even here you should use your own words to present the group's conclusions in your individual report.

**Absences:** You are required to attend every session. If you need to be absent from any lab session, you must supply either a medical note from a doctor, or a note from the dean giving an acceptable reason for your absence. If you know in advance that you have to miss a session, you should also contact me via email or letter in advance of the lab.

**Disabilities:**

**If you are a student with a documented disability on record and wish to have a reasonable accommodation made for you in this class, please see me immediately.**

**Remember:**

I am here to help! If you are struggling with any aspects of the course, or you are feeling overwhelmed, feel free to approach me (before it's too late!), and I will do my best in lending my support.

**Schedule:**

<b>Week beginning</b>	<b>Expt</b>	<b>Topic</b>
8/30/04	1.	Check in/safety lecture. Measurement of melting point.
9/6/04	2.	Purification of acetanilide via recrystallization.
9/13/04	3.	Introduction to NMR.
9/20/04	4.	Simple & fractional distillation, gas chromatography.
9/27/04	5.	Free radical halogenation of 1-chlorobutane. Quiz #1.
10/4/04	6.	Separation of an acid from a neutral by base extraction.
10/11/04	-	Make-up labs (Wed-Thu)
10/18/04	7.	TLC of analgesics.
10/25/04	8.	NMR spectroscopy. Quiz #2.
11/1/04	9.	S <sub>N</sub> 1 and S <sub>N</sub> 2 reactions.
11/8/04	10.	Synthesis of menthene by elimination.
11/15/04	11.	Hydrogenation of olive oil
11/22/04	-	No lab sessions
11/29/04		Spectral unknown oral report.
12/6/04	12.	Quiz #3, Luminol, check out.

