CHE 206-01, 02, 03, 72 **ORGANIC LABORATORY II** Spring 09
(Dr. Griswold, Dr. Marino, Ms. Meyers) 1 credit

Lab meets: by assigned laboratory sections. No cross-cutting of labs unless authorized by the instructors.
Prerequisites: Chem 205 lab, Chem 205 lecture, and Chem 206 lecture either concurrently or taken previously.

Materials needed: (1) Laboratory packet: *Identifying Organic Unknowns*
(2) Student-supplied approved notebook and safety glasses.

Attendance: You are expected to attend all scheduled lab sessions for your section. If you are unable to attend a given session, an acceptable explanation is needed, and any approved rescheduled work must be during one of the other lab section times, not at random times during the week. A student completing her unknown early may be assigned a new unknown immediately, or excused until the next lab meeting. In general, students need most of the allotted lab time to complete their work.

Grading: Individual grade components are as follows:

	% of grade
Unknown 1	**20**
Unknown 2	**25**
Unknown 3	**30**
Lab Exam	**15**
Notebook	**10**

The **lab notebook** is usually examined and initialed by the lab instructor each time a laboratory session is completed. It may be collected at any time, and it may be used in the grading process for any of the unknowns. Certain items on the unknown report sheet will require references to pages in the notebook. The notebook counts a minimum of 10% of the course grade.

Objectives and outcomes of this laboratory experience:

This lab course is an *investigative experience* in which you are determining the identities of a series of three unknown substances of increasing complexity. It utilizes skills gained in the first semester lab, but each student is working on a different compound, so you are essentially “on your own.” You will be required to record all findings and interpretations carefully in the notebook, as in any true research project. Your work in this lab will develop research skills, literature searching skills, and written communicative skills. It is an assessment of your ability to carry on a systematic lab investigation, develop conclusions, and report results.

Letters of recommendation:

For most students, your performance in this laboratory course is important, since it reflects your ability to carry out individual research and arrive at your *own conclusions*, based on interpretation of observed chemical results and analysis of spectra to arrive at correct functional groups and structures. This lab experience demonstrates your competence as an independent laboratory worker. This includes your ability to *record* your findings in legible form. In writing evaluation letters, we often refer to your performance in this course. A grade of "B" or higher in this course is essential for a favorable recommendation from our faculty.

Safety rules: We will go over the specific safety rules and procedures for this laboratory during the initial check-in session. A few initial considerations:

1. Any student who is pregnant can not work in this laboratory.
2. Any student with a physical impairment or medical problem which may affect lab work should make this known to the instructor during the first week.
3. Students may not work alone in the laboratory. Work is confined to your assigned lab section meeting time. The only exceptions are routine melting point determinations or filtrations.

Schedule of experimentation:

Week of:	activities	notes
19 Jan	Check-in; lecture on general procedures, safety rules.	*Bring packet*
26 Jan	Lecture on identifying unknowns; begin Unknown 1. **unknown 1:** aldehydes, alcohols, ketones, phenols, aromatic hydrocarbons. (Unk 1 is in the *tables*) **wet chemical techniques only.**	*Bring packet*
2 Feb	unknown 1 (cont.)	

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Schedule (cont.)

Week of:	activities	notes
9 Feb	unknown 1-2	**unknown 2:** above list of functional gps. for Unk. 1, plus these added to list: amines, carboxylic acids, esters, ethers, nitriles. **Wet chemical + infrared spec.** (Unk 2 is in the *tables)*
16 Feb	unknown 2.	***unknown 1 results due Feb. 18:*** report, derivitive.
23 Feb	unknown 2.	
2 Mar	unknowns 2 and 3	**unknown 3:** could be any functional grps or multifunctional; may or may not be in tables. **Wet chemical, infrared, NMR spectra**
9 Mar	*Spring break: College not in session*	
16 Mar	unknown 2, 3	***unknown 2 results due Mar. 18:*** report, derivative.
23 Mar	unknown 3.	
30 Mar:	unknown 3	
31 Mar	unknown 3	
6 Apr	unknown 3.	
13 Apr	*no labs this week: vacation break*	
20 Apr	**LAB EXAM** (bring packet)	***unknown 3 results due Apr. 22***
27 Apr	Lab checkout.	***turn in notebooks.***