

Chemistry 3441L, Spring 2009

3441L: 2:30 - 5:20 R (Rogers 307/316)

3441: 9:35 – 11:00 TR (Rogers 204)

Lecturer: Dr. Michael B. McGinnis

Office Hours: MWF 9:00-10:30; TR noon-1:00

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Course Description:

Laboratory to supplement CHEM 3441 will stress modern microscale techniques and current separation technologies.

Prerequisite:

Principles of Chemistry II and lab (1212/1212L)

Co-requisite:

Chemistry 3441L (this lab) is a **STRICT** co-requisite to Chemistry 3441. Therefore, if you drop, you **MUST** also drop CHEM 3441—**NO** exceptions (Note: this **also** includes unofficial drops in which the student stops attending lectures, exams, labs, etc.). Upon completion of both classes, if you do well in lab (3441L), but poorly in lecture (3441), you may choose to repeat the lecture course without repeating the lab course (and vice versa). This lab class uses knowledge from the lecture course and you may see quiz and/or exam questions in lab relating to covered lecture material in CHEM 3441!

Required text and materials:

Required-laboratory: Microscale and Miniscale *Organic Chemistry Laboratory Experiments*, 2nd Ed., A.M. Schoffstall, B.A. Gaddis, M.L. Druelinger, McGraw-Hill: 2004

Required-laboratory: Lab notebook and Safety glasses/goggles

Required-lecture: *Organic Chemistry*, 7th Ed., J. McMurry; Thomson-Brooks/Cole: 2008

Required: Access to WebCT

Grading:

Lab	Lab Books	Due*
1 Unknown #1: MP; recrystallization	10 points	2/6
2 Workshop on structures	15 points	2/6
3 Unknown #2: IR	10 points	2/6
4 TLC: Exercise K.1	10 points	2/27
5 Extraction: Expt 3.5 B	10 points	2/27
6 Information Literacy (IL)	10 points	3/13
7 Unknown #3: NMR	10 points	3/13
8 Guaifenesin: Synthesis and Extraction	15 points	4/16
9 Simple Distillation: Exercise G.1	10 points	4/16

Grading will be done on an absolute scale as follows:

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F <60%

Grade cut-offs *might* be lowered *if* the class averages are below normal. Grade cut-offs will *not* be raised.

*Due Date: Lab books are due by 2:30 pm on the day listed. TEN percent will be deducted per day the lab is late.

Attendance:

Class attendance is mandatory. Students must complete *every* lab to receive a passing grade. Prior arrangements must be scheduled **BEFORE** an excused absence. Work missed for absences due to emergencies or sicknesses must be made-up within a week of returning to class.

Pre-lab:

Your completed pre-lab assignment will be your "ticket" to the laboratory. Your notebook must contain the following for a completed pre-lab assignment:

1. Date and title of experiment
2. Purpose
3. Reaction scheme--balanced chemical equation and mechanism (if appropriate)
4. Table of reagents and *products* (Sources: your textbook, Aldrich catalog, CRC, etc.)
5. *General* outline of techniques and experimental procedure

During the laboratory:

You must write in your laboratory book a detailed account of everything you do, observe, and calculate as it is completed (i.e. amounts of reactants/reagents used, observations of temperature increase of reaction vessel, etc.).

Results/Discussion

This section should contain a discussion of the results along with balanced equations (with amounts and moles of reactants *and* products), percent yield, analysis of all spectral data (IR, NMR, etc.), and measured physical properties (melting point, density, etc.)

Conclusion

The conclusion should evaluate your successes, your errors and what you learned.

Note: To include structures (and more) in an electronic document such as MS Word, you can download ChemSketch Freeware from Advanced Chemistry Development at <http://www.acdlabs.com/download/chemsk.html>

Academic Dishonesty Policy:

Simply, academic dishonesty will not be tolerated. Any violation OR attempted violation will result in an F for the course AND will be reported to the Judicial Council under the NGCSU academic integrity code. The complete academic integrity code can be found in the NGCSU Student Handbook.

Fire Drill Procedure:

In the event of a fire signal students will exit the building in a quick and orderly manner through the nearest hallway exit. Learn the floor plan and exits of this building. Do not use elevators. Crawl on the floor if you encounter heavy smoke. Assist disabled persons and others if possible without endangering your own life.

External Plagiarism Check:

This course may use plagiarism prevention technology. Students have the option of submitting papers online through a plagiarism prevention service or allowing the instructor to submit hard copies of these papers. The papers may be retained by the service for the sole purpose of checking for plagiarized content in future student submissions.

Class Evaluations:

Class evaluations at NGCSU are conducted on-line through Banner. Evaluation of the class is considered a component of the course and students will not be permitted to access their course grade until the evaluation has been completed. The evaluations will be accessible beginning one week prior to Final Exam week.

Chemistry 3441L Laboratory, Spring 2009
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DATE		LABORATORY	ASSIGNED PROBLEMS
January 8		NO LAB	
January 15		Introduction to Laboratory; Lab Check-in	
	1	Unknown #1 Laboratory: MP	
		Recrystallization: Technique F (p. 34)	Questions (p. 51) 1,3,4,5,9,10,13
		Melting Points: Technique C (p. 22)	Questions (p. 27) 1,4
January 22		Workshop on Drawing Resonance Forms,	
	2	Drawing Lewis Structures and 3-Dimensional Drawing	
January 29		Infra-Red Spectroscopy: Technique M (p. 110)	
		Chapter 12 in McMurry lecture text	
	3	Unknown #2 Laboratory: IR	Questions (p. 125) 9,10,11
February 5		Continue/catch-up for labs 1-3	
February 12		Thin-Layer Chromatography: Technique K (p. 92)	
	4	Exercise K.1 (p. 101);	Questions (p. 103) 1,4
February 19		Extraction: Prelab (p. 202) 1,2,3,4 & Appendix C	
	5	Experiment 3.5 B (p. 203);	Questions (p. 204) 2,3,6
February 26	6	Information Literacy (IL)	
March 5		NMR: Technique N (page 125)	
		Chapter 13 in McMurry lecture text	
	7	Unknown #3 Laboratory: NMR	
March 12		NMR, continued	
March 19		Spring Break: No Laboratory This Week	
March 26	8	Guaifenesin: Synthesis and Extraction	
April 2		Guaifenesin: Synthesis and Extraction, continued	
April 9		Simple Distillation: Technique G (p. 52)	Questions (p. 64) 4,6,8,9,10
	9	Exercise G.1 (p. 63);	
April 16		Lab Check-out and Clean-up	