

Syllabus—Organic Chemistry II (CHE-251)—Fall 2009

Instructor:	Dr. Keith Wiitala	Office: 303B, Nobel Hall
Phone:	TBA	E-mail: kwiitala@gustavus.edu
Lectures:	CHE-251-001, Mon., Wed., Thurs., Fri., 9:00—9:50 am, Nobel Hall, Wallenburg Auditorium.	
Labs:	CHE-251-006, Wed., 1:30—5:20 pm, Nobel Hall 301, CHE-251-007, Thurs., 1:30—5:20 pm, Nobel Hall 301.	
Office Hours:	Wed. and Thurs., 11:00-12:00 noon--or by appointment.	

Course Description

This is a demanding, fast-paced course. This course (1 credit) is the second of a two-course sequence. The composition, structure, and behavior of carbon compounds are examined. Laboratory work emphasizes laboratory techniques, synthesis of organic compounds, characterization of synthetic and naturally occurring compounds, and elucidation of reaction mechanisms. The lecture portion (50 minutes) meets MWRF while the laboratory portion meets once per week (~4 hrs). Prerequisite: A passing grade in CHE-141. A passing grade in CHE-251 must be earned before advancing to CHE-255 (Biochemistry) and CHE-375 (Organic Chemistry III).

Goal

A hardworking student enrolled in this course can expect to learn a basic understanding of organic chemistry that is essential to successfully pursuing a career in science, pharmacy, medicine, dentistry, science-related law, or other fields.

Required Materials

- Lecture:**
- (1) *Organic Chemistry: A Biological Approach*, by McMurry, The Thomson Corp., 2007.
 - (2) Access to “Moodle” (<http://moodle.gac.edu/>).
 - (3) Access to “OWL” (<http://owl.cengage.com/>).
 - (4) Molecular model kit.

- Lab:**
- (1) *Techniques in the Organic Laboratory*; Pavia et al.; Brooks/Cole: Belmont, CA; 2002.
 - (2) *CHE-251 Lab Manual*— contains experiment procedures.

Course Policies

Academic Integrity: It is expected that all students will follow the academic integrity policies set by Gustavus Adolphus College. Violations of these policies will not be tolerated.

Attendance: *Students are expected to attend all lectures.* Material covered in the lecture is not always covered in the text, and even when the same topics are covered, the emphasis may be different. If you miss a lecture, it is *your responsibility* to obtain material such as missed lecture notes and handouts.

Exams: *Anyone caught cheating on an exam or assignment will receive a grade of “0” for that exam or assignment. Repetition will result in an “F” for the course. Students must notify the instructor in advance if they cannot be present for an exam. Failure to do so could result in a score of zero for the exam.* Simply falling behind in assignments, unless due to serious illness or other compelling circumstances, is not a legitimate reason for postponing an exam.

Homework

For each chapter you will be required to complete a selection of assigned homework problems using the online OWL system. Your homework will be graded by the system. In addition, there will be some group-learning problems assigned as well. Work groups will consist of 4-5 persons and will have ~1 week to complete an assignment for grading.

Exams

The four one period exams will be held on Monday, September 28th; Thursday October 22nd, Monday, November 16th; and Friday December 11th in Wallenburg Auditorium during regular class times. The comprehensive final exam will be held on Thursday, December 17th from 10:30 – 12:30 noon in Wallenburg Auditorium.

Grading

You will receive one letter grade A+ thru F for the course (lecture and lab together). Your grade is calculated using points earned on homework, exams, lab exercises, and the final exam. For each component of your grade, the earned points are normalized, weighted, and summed to produce a cumulative total. In general, a cumulative total of $\geq 90\%$ is in the "A" range, $\geq 80\%$ the "B" range, $\geq 70\%$ the "C" range, $\geq 60\%$ "D", $< 60\%$ "F". The components and weightings of your grade are:

OWL homework problems.....	10%
Group-learning problems.....	10%
Four one period exams.....	40%
Comprehensive final exam.....	20%
Laboratory.....	20%

NOTE: You should keep all graded materials until you have received your final course grade.

Course Coverage

<i>Selected Semester I Topics</i>	Review
<i>Alcohols, Phenols, Thiols, Ethers, Sulfides</i>	Chapter 13
<i>Alkenes and Alkynes</i>	Chapter 6 and 7
<i>UV-Vis Spectroscopy</i>	Special Lecture
Exam I	
<i>Reaction of Aromatic Compounds</i>	Chapter 8
<i>Organometallic Compounds</i>	Special Lecture
<i>Aldehyde and Ketones</i>	Chapter 14
<i>Carboxylic Acids and Nitriles</i>	Chapter 15
Exam II	
<i>Carboxylic Acid Derivatives</i>	Chapter 16
<i>Carbonyl Alpha-Substitutions</i>	Chapter 17
<i>and Condensation Reactions</i>	
<i>Amines and Heterocycles</i>	Chapter 18
Exam III	
<i>Amino Acids, Peptides, Proteins</i>	Chapter 19
<i>Carbohydrates</i>	Chapter 21
<i>Lipids</i>	Chapter 23
<i>Cycloaddition and Electrocyclic Reactions</i>	Special Lecture
Exam IV	

Laboratory

The following is the experiment schedule for lab sections 006 and 007:

Sept. 16 and 17:	<i>Check-in, "Extraction of Caffeine from Tea"</i>
Sept. 23 and 24:	<i>"Electrophilic Aromatic Substitution"</i>
Sept. 30 and Oct. 1:	<i>"Multi-Step Synthesis: the Grignard Reaction, Week 1"</i>
Oct. 7 and 8:	<i>No lab this week (Nobel Conference).</i>
Oct. 14 and 15:	<i>"Multi-Step Synthesis: the Grignard Reaction, Week 2"</i>
Oct. 21 and 22:	<i>"Transfer Hydrogenation, Week 1"</i>
Oct. 28 and 29:	<i>"Transfer Hydrogenation, Week 2"</i>
Nov. 4 and 5:	<i>"Transfer Hydrogenation, Week 3"</i>
Nov. 11 and 12:	<i>"Structure-Activity Relationships: Antibiotics"</i>
Nov. 18 and 19:	<i>"Dilantin"</i>
Dec. 2 and 3:	<i>"Azo Dyes"</i>
Dec. 9 and 10:	<i>Check-out</i>

TIPS FOR DOING WELL IN THIS COURSE—

1. Attend *all* lectures.
2. With the help of your text, review, and clarify your lecture notes after every lecture.
3. Approximately 4-5 lectures will be spent on each chapter. During this time period, you should actively review lecture notes, read/studied the chapter, complete intra-chapter problems, and complete assigned OWL and other homework problems.
4. Become organized immediately and stay with the flow of the course. Do NOT fall behind.
5. Study on a *daily*—not weekly—basis. Review constantly.
7. Ask questions if you do not understand.
8. Try some similar end-of-chapter problems for further practice.
9. Use *flashcards* to help assimilate information.
10. Realize that a portion of the organic chemistry course involves learning a certain amount of "vocabulary" (names, structures, and reactions). To some extent this is memory work; however, it is *indispensable* if you are to obtain any real benefit from this course. Organic chemistry is comparable to a language; in order to write sentences, compose paragraphs, and someday write novels, *you must first learn the vocabulary*. To help you, your instructor will take a mechanistic approach, concentrating on the mechanisms of organic reactions so that you can understand why and how a reaction occurs between two molecules. *Organic chemistry is a challenging course, but it is a very rewarding one as well. Work hard. Have fun in the course. Good luck!*

Disability Services

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (1990) work together to ensure "reasonable accommodation" and non-discrimination for students with disabilities in higher education. A student who has a physical, psychiatric/emotional, medical, learning, or attention disability that may have an effect on the student's ability to complete assigned course work should contact the Disability Services Coordinator in the Advising Center, who will review the concerns and decide with the student what accommodations are necessary.