

Organic Chemistry II
CHMB42H3
Course Outline (second part)

This document contains important course information and should be kept in a safe place where you can refer to it throughout the term.

Welcome to the CHMB42H3: Organic Chemistry II: CHMB42 part II studies the chemistry of carbonyl compounds, and provides an introduction to the chemistry of biologically important compounds, including heterocycles, and carbohydrates. CHMB42 is prerequisite for almost all other further chemistry and biology and biochemistry courses at UTSC.

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Lectures: Mon 9-11 am, Wed 1-2 pm in HW216

Office hours: Mon. 2:00 – 4:00 pm, Wed. 11:00 am – 12:00 pm, SW141
You can also see me during lab skills seminars.

Required Text Books:

P.Y. Bruce, *Organic Chemistry*, 5th ed., Pearson.

P.Y. Bruce, *Study Guide and Solutions to Organic Chemistry*, 5th ed., Pearson
(You can also use 4th edition book and Study Guide)

Recommended Websites:

Virtual Textbook of Organic Chemistry:

<http://www.cem.msu.edu/~reusch/VirtualText/intro1.htm>

Interactive Tutorials:

<http://www.cem.msu.edu/~reusch/VirtualText/Questions/problems.htm>

Method of Evaluation:

See Wanda Restivo's syllabus

Communications: via e-mail, office hours, discussion sessions, and Intranet

Learning Outcomes for the Course:

By the end of this course, students will be able to:

1. Name carboxylic acids, acyl halides, acid anhydrides, esters and amides, ketones, aldehydes, and carbohydrates using UPAC rules.
2. Compare and contrast the structures, properties, and reactions of carbonyl compounds (aldehydes, ketones, carboxylic acids, acyl halides, anhydrides, esters, amides), amines, heterocycles, and carbohydrates.
3. Give the mechanisms for nucleophilic substitution.
4. Explain the stereochemistry of nucleophilic addition reactions, D&L notation for carbohydrates.
5. Predict major and minor products of reactions based on reaction data and explain why/how they are formed.
6. Distinguish between enantiomers, diastereomers, meso and other forms of isomers.
7. Design syntheses for organic compounds and evaluate potential mechanistic problems associated with them.
8. Formulate and perform the laboratory synthesis, purification, and characterization of the organic compounds studied.

Assessments:

Learning outcomes will be assessed through the following things: homework, class work, tutorials, quizzes, exams, laboratory experiments.

Study Hints:

Organic chemistry is a cumulative subject. As such, an understanding of new material depends on mastery of topics discussed in previous chapters, including that which was taught in Organic Chemistry I. **Keep up with the material –do not let yourself get behind!!!**

Discussion Section:

The discussion section for this class will be Wednesday afternoon from 12 - 1 pm in HW216. This is your time to ask questions that you were not able to ask during the lecture.

Lecture Schedule: This is a rough guide only and may change throughout the term.

Lec #	Date	Subject	Reading (Bruice 5 th ed.)	Reading (Bruice 4 th ed.)
7	June 17 June 22 June 24	Carbonyl Compounds II	Ch 17	Ch 18
8	June 29 July 6	Carbonyl Compounds III	Ch 18	Ch 19
9, 10	July 8 July 13 July 15	Carbonyl Compounds III More About Oxidation-Reduction Reactions	Ch 18 Ch 19	Ch 19 Ch 20
11	July 20 July 22	More About Amines Heterocyclic Compounds	Ch 20	Ch 21
12	July 27 July 29	Carbohydrates	Ch 21	Ch 22
Summer Term Exams	August 8- August 21	Three hours term test.		

Assigned problems will be posted with the every lecture material.

Class notes:

Sets of *incomplete notes*, including figures discussed in class, will be available on the class Intranet page prior to the corresponding lecture. You are responsible for printing these notes and bringing them with you to class. **You will be responsible for all material covered in lecture, even if it is not included in the online notes;** you must attend lecture in order to get additional information.

Steps toward success in Organic Chemistry II:

- 1. Look through the chapter before lecture.** It is not necessary to read the whole chapter before class, but look at headings and schemes, specifically trying to find similarities to topics that you already know. Much of organic chemistry follows the same trends, and identifying common themes will make studying and leaning the material much easier.
- 2. Go to class.** Go to class every time and pay attention during class.
- 3. Do practice problems!** This is the most important and most productive way to study and ESSENTIAL to you success in the class. Work as many problems as you can, but realize that reading the solution manual is not the same as solving a problem on your own. If you have a difficult time with the problem, it will be much more beneficial to you if you reread the appropriate section of the textbook (and online text if you need additional explanations) than if you simply read the answer.

4. **Ask questions!** Attend office hours.