

Organic Chemistry II CHMB42H3 2010 Summer 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.

Instructor: Dr. Lana Mikhaylichenko

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(416) 287-7207, SW-633A

Lectures: Mon 9-11 am, Wed 12:30-2 pm at HW 216

Office hours: Tue 2:00 – 4:00 pm (SW155B), Thu 2-3 pm (SW155B)

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. Up to three bonus marks (in addition for your final exam 45 grades) could be assign for the course extra curriculum activities. Please see the information at the end of this 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 addition in carbonyl compounds, nucleophilic and electrophilic substitution in aromatic heterocycles.
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, lecture games, and extra curriculum activities.

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 Tuesday evening from 6 - 7 pm in AC223. This is your time to ask questions that you were not able to ask during the lecture. I will go over some complicated material covered during the lecture and some problems.

Online viewing:

The lectures will be videotaped and posted online. You will be able to view them for up to a week after the lecture date at which point they will be removed from view.

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

Lec #	Week of	Subject	Reading (Bruice 5 th ed.)	Reading (Bruice 4 th ed.)
7	June 14	Carbonyl Compounds II	Ch 17	Ch 18
8	June 28	Carbonyl Compounds III	Ch 18	Ch 19
9	July 5	Carbonyl Compounds III	Ch 18	Ch 19
10	July 12	More About Oxidation-Reduction Reactions	Ch19	Ch 20
11	July 19	More About Amines Heterocyclic Compounds	Ch 20	Ch 21
12	July 26	Carbohydrates	Ch 21	Ch 22
Summer Term Exams	August 7- August 20, summer exam period	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.

Accessibility:

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416)287-7560 or ability@utsc.utoronto.ca.

Academic Integrity:

Academic integrity is one of the cornerstones of the University of Toronto. It is critically important both to maintain our community which honours the values of honesty, trust, respect, fairness and responsibility and to protect you, the students within this community, and the value of the degree towards which you are all working so diligently.

According to Section B of the University of Toronto's Code of Behaviour on Academic Matters

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm> which all students are expected to know and respect, it is an offence for students to:

- To use someone else's ideas or words in their own work without acknowledging that those ideas/words are not their own with a citation and quotation marks, i.e. to commit plagiarism.
- To include false, misleading or concocted citations in their work.
- To obtain unauthorized assistance on any assignment.
- To provide unauthorized assistance to another student. This includes showing another student completed work.
- To submit their own work for credit in more than one course without the permission of the instructor.
- To falsify or alter any documentation required by the University. This includes, but is not limited to, doctor's notes.
- To use or possess an unauthorized aid in any test or exam.

There are other offences covered under the Code, but these are by far the most common. Please respect these rules and the values which they protect. Offences against academic integrity will be dealt with according to the procedures outlined in the Code of Behaviour on Academic Matters.

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 learning 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 your 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.

Class extra activities

1. We are going to introduce jeopardy games in this course. Student from Science Engagement program is responsible for making these games to you. Your help of doing this will be greatly appreciated and rewarded. I assign an extra bonus mark in addition to your final exam grade for participation in this. You will expect to create at least three accepted questions related to the lecture material. Each accepted question **MUST** be from different chapter. You must submit your question(s) no later than Friday followed by the last lecture for the given chapter. For example, I am going to spend week of June 14 and June 21 for the chapter 17 material. Your question(s) must be submitted no later than Friday, June 25th. All questions must be submitted in **electronic format with answers**. Please state the name of the chapter for these questions and resource (you **MUST** include it even if this book is written in your native language). All questions must be submitted to Jenny Hon (jenny.hon@utoronto.ca). She will review these

questions and will let you know which question has been accepted. The question must be related to the class material, must be **NOT** from your text book and must be ever funny, practical, or challenging. You could create multiple choice questions or a short answer questions. You can create your own question or use some extra source of information. In this case please let us know the original recourse. We are looking forward to see your questions. **Your question(s) could appear in your final exam!**

2. The other project will be a **Molecule of the Week**. You will be expected to create a short power point presentation (5-7 min max) based on the material which we are currently studying. You can pick one molecule from the chapter's material and make a brief overview about its discovery, physical and chemical properties, and practical application. This presentation must contain interesting and challenging material. You can do this alone or as a group (not more when two students in a group are allowed). You should submit your presentation to Jenny Hon (jenny.hon@utoronto.ca) not later when Friday afternoon (at the end of given chapter). We will contact you and let you know if your presentation will be accepted.

3. We are also looking for the songs or poems related to the course material. The example of such projects will be shown for you in class. This could be group or individual project. Project must be submitted by 6pm on Friday, July 24th.

Full of partial mark will be assign for each project depending on quality and material.

This is a real chance to improve your course performance, please use this opportunity!

I am looking forward to see you all and work with you!

