

ORGANIC CHEMISTRY I

CHMB41H3

LECTURE OUTLINE

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

Welcome to CHMB41HS: Organic Chemistry I:

Welcome to CHMB41! I am passionate about organic chemistry as it can be an exciting subject with applications that are found all around us. Yes, this course is going to require some hard work, but I hope to make it worth your while by exposing you to some of the exciting aspects of this diverse field and connecting the subject to your everyday lives. Before we get started, please take a few minutes to read through this document. It contains important information which will help ensure you have all the tools you'll need to succeed in this course.

CHMB41 provides an introduction to the electronic structure, nomenclature, and bonding in organic compounds, and studies the mechanisms of various chemical transformations, such as substitution, elimination and radical reactions of several classes of organic compounds. The stereochemistry, or 3-dimensional arrangement of atoms, in organic molecules and various methods for stereochemical representation will also be discussed in detail.

This course includes a four hour laboratory every other week. It is a prerequisite for almost all other further chemistry and human biology and biochemistry courses at the University of Toronto at Scarborough campus. **Students enrolled in CHMB41H must have previously successfully completed CHMA10H. If you do not have this prerequisite, it is imperative you see the instructor to discuss your situation; otherwise I cannot accept any responsibility for your performance and outcome in the course.**

Lectures:

TU 13:00-14:00	SW 143
TH 13:00-14:00	HW 216
FR 13:00-14:00	SW 128

Clickers:

To encourage participation and engagement with the material in class, you are required to have a clicker (iClicker) which can be purchased from the bookstore so that you can participate in the questions that will be presented periodically through the lecture. You will have the option of selling them back to the bookstore at the conclusion of your courses (at a discounted rate).

Registering your iclicker:

To register your iClicker, visit this website:

<http://www.iclicker.com/registration/>

On the web form "Student ID" refers to your 'UTORid' NOT your student number. The "Remote ID" field refers to the unique number on the back of the iClicker, which appears just below the bar code.

Voting:

To vote with your iClicker, turn the power on and select your response.

If the vote is recorded, the vote status indicator will momentarily blink green.

Lecturer: Dr. Shadi Dalili (SW-651)

Lab Coordinator: Dr. Shadi Dalili (S-155B)

Email: sdalili@utsc.utoronto.ca

Office Hours: Thurs 2:30-4pm SW-651

Course Website: CHMB41 maintains a Blackboard web space which archives a variety of course-related information including: class announcements, lecture slides, contact information and links to some useful outside resources. In addition, class emails will regularly be sent via Blackboard. *In order for you to receive these emails, you must have a valid "utoronto.ca" email account registered with ROSI.*

To login, go to: <https://portal.utoronto.ca/webapps/portal/frameset.jsp>. Click on "log-in to the portal" at the top left. Login using your UTORid username and password (same as what's used for your UTOReMail). Under the "My Courses" box (top right), click on the CHMB41 link.

Discussion Board:

An online discussion board will be maintained through Blackboard. This online space will provide you with a place to post and answer questions related to the course material. You may post anonymously, or as yourself. The forums will be monitored by myself (and/or a teaching assistant) to ensure that all questions are answered accurately. In addition, frequently asked questions (with their answers) may also be posted here so be sure to check in periodically.

Please note: Posts which contain answers/solutions to weekly homework assignments are not permitted and will be removed promptly.

Learning Outcomes for Course: By the end of this course, students will be able to:

- a) Identify and name major classes of organic compounds
- b) Describe and distinguish between different types of bonding and their effect on physical properties of molecules
- c) Give examples of different types of nucleophiles and electrophiles and show electron movement in reactions

- d) Predict major and minor products of reactions based on reaction data and explain why/how they are formed
- e) Compare and contrast thermodynamic versus kinetic products and conditions for formation of each
- f) Classify reactions as substitution, elimination, addition, etc and choose/distinguish between factors and conditions that favor one type versus others
- g) Convert 2-dimensional chiral structures into 3-dimensions and determine *R* or *S* stereochemistry
- h) Distinguish between enantiomers, diastereomers, meso and other forms of isomers
- i) Anticipate and validate the stereochemical outcome of reactions involving stereocenters
- j) Propose and design syntheses of given compounds using retrosynthetic analysis

Textbook: Organic Chemistry (10th Edition), T.W. Graham Solomons (same text as used in CHMB42H, CHMC47H, and sometimes CHMC41H & CHMC42H, to make it cost effective)

The text, a study guide, solutions manual, and the Wiley Plus access code (a chemistry tutorial and on-line testing access module) will be available, as a package.

If you already have a textbook and only need the online homework access code, you will need to buy it through the bookstore. Alternatively, you may purchase the text in an unbound, three-hole punched form at a significantly reduced cost. This also has the advantage of allowing you to carry around only those chapters which you are currently using. You also have the option to buy the e-text which is cheaper than other forms of the text. The publisher's web site at: <http://www.wiley.com> includes media materials, which supplement the text.

Chapters: 1-13 (excluding chapters 9 and 12)

Recommended: Study Guide and Solutions Manual

Molecular models:

You are *strongly encouraged* to purchase a molecular model kit from the UTSC bookstore. These will become an invaluable tool as the course progresses since several key topics require visualization and manipulations of compounds in three-dimensions.

Online Homework: Wiley Plus by Wiley

Class URL: <http://edugen.wiley.com/edugen/class/cls204554>

WileyPlus Online Homework schedule: setup your account using instructions for setting up account according to code package bought from bookstore. The problem sets will be released every Friday evening after each chapter is finished and they are due the following Friday at midnight.

The assignments will be equally weighted and recorded as a percentage. They will cover the material discussed in class.

Late assignments will not be graded

In the final calculation for the Homework grade, the lowest mark will be dropped.

Extra Resources:

a) *Facilitated Study Groups*

In this course, we will be offering Facilitated Study Groups (FSGs) through CTL. Facilitated Study Groups (FSGs) are weekly study sessions open to all students taking CHMB41, and who want to improve their understanding of course material, improve their study techniques, and improve their grade. Attendance is voluntary. In FSGs you'll compare notes, discuss important concepts, develop study strategies, and prepare for exams and assignments on course material. Course material is NOT re-lectured. FSGs are lead by a trained facilitator who has previously taken the course. Research shows that students who attend FSGs regularly can achieve better grades. A survey will be taken during the first week of class to determine the best days and times for most students, and then the FSGs will start (probably the second or third week of class). Those days, times, and session locations will be announced in class, posted on our course page, and at :<<http://ctl.utoronto.ca/home/fsg/>>. Attend as many sessions as you want!

b) *Lab Skills Seminar*

An optional seminar will be held each week during which the upcoming lab will be discussed. New techniques will be demonstrated, including a review of how to set up the relevant glassware or any other apparatus to be used. Background theory for the lab will be discussed, including a review of any relevant reaction mechanisms. The time(s) and location(s) for these seminars will be announced in class

Laboratory Schedule:

Odd numbered labs Sections **PRA0001, PRA0003** etc. (**week 1 students**) begin labs week of **January 17th, 2011**. **Even numbered** labs Sections **PRA0002, PRA0004** etc. (**week 2 students**) begin labs week of **January 24th, 2011**.

The laboratory component of CHMB41H is compulsory. In order to pass the CHMB41H course, students must pass the lab component of the course.

If you are absent: report it to your TA by phone or e-mail. You may also leave a message with the Lab Coordinator Shadi Dalili in SW651 or by phone 287-7215. Hand in medical note in your next class or ASAP.

The medical note should:

- verify that the student was examined on the day of the test
- if possible, state the illness and
- it **MUST** indicate the physician's professional opinion as to whether the student should receive special consideration on medical grounds.

Documentation should be provided as soon as possible so that a makeup lab can be scheduled, provided that room can be found in another lab section. ***If no reason for your absence is made, a mark of zero will be given for that lab. Missed labs can only be***

*made up **within 1 week** of the missed lab and if there are further conflicts or a student misses a makeup lab, no more makeup opportunities will be provided and there will be a mark of zero recorded for that lab.*

Laboratory Rules

Please arrive *on time* for your labs and come *prepared*. The experiments are designed such that a *well-prepared* student can complete the experiment in the allotted time. If you haven't read over the procedure ahead of time and made sure that you understand each step, it will likely be difficult for you to finish your work on time. As a suggestion, I recommend that you prepare a point-form version of the lab procedure before coming to each lab.

Lab Manual:

This must be purchased **from** the UTSC Bookstore (\$10). Note, you may **not** use a lab manual from a previous year as many of the experiments are changed every year.

Lab Coats: They are required. They may be purchased from most Hardware Stores or from the UTSC Bookstore.

Safety Glasses: Safety glasses must be worn at all times in the lab. Students who do wear glasses should purchase a pair of goggles which must be worn over their glasses at all times. **Contact lenses must not be worn in the laboratory. NO STUDENT WILL BE ALLOWED TO WORK IN THE LABORATORY UNLESS HE/SHE IS WEARING APPROVED EYE PROTECTION.**

Be punctual: The introductory explanations for the experiments and/or quizzes will begin at 10 minutes past the hour.

Be prepared: Each student will be expected to have a good knowledge of the assigned experiment **before** entering the laboratory. **It will be helpful to prepare a point-form pre-lab procedure before coming to the lab.**

Be there: Your term mark from the lab is worth a large percentage of your mark. It is based not only on the reports which you submit, but also on your ability to answer, with competence, the questions of the demonstrators and instructor.

- **PLEASE NOTE that students will not be allowed to re-schedule or miss labs on the days of any first year term test or exam. This is a Chemistry Discipline Policy.**

E-mail policy:

- Use UTSC account
- If Yahoo or Hotmail used follow instructions below to prevent email ending up in junk mail:

- put CHMB41 in the subject line followed by the reason for the email
- use a greeting of some kind - NOT "Hey"
- sign your first and last name
- please include your student number after your name
- Student emails will be replied to within 24 hours (M-F) provided that the above protocol is used.

A note on email content: Please do not email questions regarding the lecture material/assigned reading/suggested problems. These should be posted on the discussion board (see below) so that others can benefit from the responses provided. Questions on the lab material should be directed to one of the lab coordinators, or your TA.

Method of Evaluation: The grading scheme for the course is shown in the table below:

Term Test*	25%	First 6-7 weeks
Final Exam	45%	Entire course work
Online homework	5%	Lowest mark will be dropped from final grade
Laboratory**	25%	See lab manual for dates/evaluation
Extra Credit Project	1.5%	Details to be announced in class

* no makeup for term test

** lab component must be passed in order to pass course

NOTE: In order to pass the course, you MUST pass the laboratory component and at least one of the midterm or final exam.

Online Grades:

Individual grades will be posted on the intranet as they become available. Please check these periodically to make sure that the posted grades match your own records. Any discrepancy should be reported immediately to the instructor or the lab coordinator, as appropriate.

No calculators, models, pagers, cell phones or other aids will be allowed during any quizzes, lecture test or exam, unless announced previously.

Persons who miss a test or exam are expected to contact the S. Dalili immediately. Documentation, for approval, **must be given within one week** (e.g. Doctor's note - which should say that you were seen on the day in question, and that in the Doctor's opinion you were unable to write a test that day). If the documentation is insufficient, you may be required to obtain further, signed, paperwork. Those presenting a valid, documented reason for absence, in writing, within this time frame, will be allowed to be excused OR

to write a deferred exam (NO MAKEUP for midterm), AT THE INSTRUCTOR'S DISCRETION.

Please note that if you miss the Final Exam, you must petition the Registrar's Office to write a make-up exam in the next formal exam period. Check the UTSC Calendar for instructions and deadlines.

Marked Term Tests - an announcement will be made, in lecture and/or on the intranet and Blackboard, when tests are marked. You have one week to check your test with Shadi Dalili, during any office hours, or other announced times. Re-marking claims will only be considered for one week after the announcement has been made. Claims must be accompanied by a written statement, outlining the difficulty and presenting data (referenced, if necessary) to support your claim for extra marks.

Lecture Schedule: This is a ROUGH GUIDE only and may change throughout the term. Check for updated lecture schedule based on notes posted on Blackboard and announcements in class.

Week of:	Chapters	Subject
Jan 10	1	Introduction:Electronic structure, Bonding
Jan 17	1,2	Functional Groups, Structure representation
Jan 24	2,4	Nomenclature, Conformations of alkanes,
Jan 31	4,3	Cyclohexane conformations, Intro to Org reactions
Feb 7	3,5	Acids and Bases, Stereochemistry: Arrangement of Atoms in Space
Feb 14	5,6	Stereochemistry: Arrangement of Atoms in Space; Addition reactions
Feb 21	-	Reading Week- NO CLASSES
Feb 28	6,7	Addition reactions, Alkene and Alkyne Reactions
TERM TEST	90 MINS	Around this time. Date to be announced. Chapters TBA
Mar 7	7,8	Alkenes and Alkynes continued
Mar 14	8,11	Alkenes and Alkynes continued, Alcohols and Ethers
Mar 21	11,10	Alcohols and Ethers, Radicals
Mar 28	10,13	Radicals, Conjugated Unsaturated Systems
Apr 4th	Review	Review of material and completion of any remaining chapters
Apr 13 th - May 1 st	Spring Term Exam period	Three hour final exam

SUGGESTED PROBLEMS:

A separate document listing the assigned problems will be posted on Blackboard. The assigned problems are the minimum number suggested for you to try. *OMIT any questions pertaining to material that is not covered in lectures as you will not be responsible for it unless told otherwise.* You should always attempt as many problems as possible, as Organic Chemistry is mainly learned by "doing". The best way to do this is to keep up with the lecture material as much as possible, getting help with any problems as soon as you can, and attempting most of the problems within and at the end of each chapter. It is probably best to try these before you try the online homework problems. The online homework assignments should be attempted individually which will benefit you immensely in preparation for the midterm and the final exam in the course.

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.