

This document contains important course information. Due to the impact of the pandemic, some of the details, such as the delivery format of some or all course components after January 31th, will be communicated as institutional and departmental guidelines become available.

Welcome to CHMB41! Organic Chemistry has a vertical structure, that is new concepts depend on previous material. This first semester of organic chemistry lays down the foundation of electron distribution, spatial arrangements, energetics of organic compounds and mechanistic patterns of selected reactions. With a firm grasp of these fundamental concepts, you will be well prepared for other courses as well as upper-level organic chemistry courses, you will flourish in the discipline and eventually adopt it for the rest of your life!

- 1. Instructor**
Dr. Ahlem Bensari
ahlem.bensari@utoronto.ca
Online Office hours: Fridays 1:00 p.m. – 3:00 p. m.
Also available after each class
- 2. Class meets**
Tuesday 1:00 p. m – 3:00 p. m. SY 110
Thursday 1:00 p. m – 2:00 p. m. SW 319
Lab
Lab Coordinator: Dr. Ahlem Bensari
Tuesday 9:00 a. m.- 1:00 p. m. EV 112 & EV 113 (PRA001-003)
Friday 9:00 a. m.- 1:00 p. m. EV 112 - 114 (PRA007-0011)
- 3. Course Overview:** CHMB41 begins with a review of chemical bonding in organic structures, followed by an in depth look at conformational analysis and stereochemistry. It explores the reactivity of organic molecules starting with acid-base reactions, simple additions to carbonyl compounds, reactions of alkenes and alkynes and substitution reactions.
Prerequisite: CHMA11H3 or CHMA12H3
- 4. Learning Outcomes:** By the end of this course, you should be able to
 - Identify and name substances from major classes of organic compounds
 - Describe bonding of organic molecules and relate to their physical and chemical properties
 - Recognize the different types of isomerism and use proper nomenclature to distinguish between isomers
 - Identify nucleophiles and electrophiles, and sites of high and low electron density in a molecule
 - Predict and rationalize the formation of major/minor products based on the reaction parameters
 - Distinguish between reaction conditions under thermodynamic versus kinetic control and determine the product formed in each case.
 - Classify reactions as substitution, elimination or addition based on the different elements of the reaction
 - Anticipate and validate the stereochemical outcome of stereoselective/stereospecific reactions
 - Propose and design syntheses of target compounds using retrosynthetic analysis
 - Use the curved arrow formalism to show the flow of electron in bond breaking and bond forming processes and write a valid reaction mechanism for a variety of chemical transformations.

5. Required Material:

Required e-Text: *ORGANIC CHEMISTRY: Mechanistic Patterns; by William Ogilvie et al.*; (2nd edition). The access key for the e-text can be purchased [here](#) from UTSC bookstore or directly [here](#) from the digital text host, Top Hat using our *course join code 334233*. The above text will be referenced for reading and for working through practice problems and your Top Hat account will be required for in class course participation.

Molecular Model Kit: Many concepts in this course involve the visualization and manipulation of the three-dimensional structure of molecules and this visualization aid becomes invaluable as we learn about the structural aspects of organic molecules. Though optional but strongly recommended that you purchase a molecular model either from UTSC bookstore, other bookstores, amazon or former chemistry students.

Lab Material: You will be either provided with a digital copy of the lab manual/experiments through Quercus if labs will be delivered online throughout the semester or directed to purchase a Lab manual from UTSC bookstore should in person labs resume beginning February. Lab manuals from past semesters may not be used as they are revised, modified, and updated each time. In addition to the lab manual, you will also need a hardcover; 22 x 28 cm ruled sheets laboratory notebook, a lab coat and safety goggles that you may already have from past chemistry courses or can purchase from UTSC or other suppliers to use for in-person labs.

6. Course Arrangements and Tentative Schedule

Lectures: begin week of January 10th and will be delivered synchronously online until January 31. CHMB41 is originally intended to be offered in person and you will be notified around 3rd/4th week of January whether we are allowed back to in-person classes starting February 1st. Brief course lecture notes will be available on the CHMB41 course website on Quercus ahead of each class. Be prepared to take/complete notes and actively engage with the material in class. Lectures will be recorded and available after class to view on Quercus.

Tutorials: begin week of January 24th and will be held online until further notice starting Thursday January 27th and ending Thursday April 7th (Please see course schedule next page). Tutorials will be running every other week alternating with laboratory weeks except for the last week of classes. Throughout the term you will be assigned drill and practice questions on Top Hat—not for credit—from end of chapters to work through before your next tutorial session. During tutorial sessions your teaching assistant (TA) will answer any questions that you may have regrading assigned problems and assist you in understanding the important concepts. At the tutorial classes, you will write 10-minute quizzes that count for credit towards your final mark. The quiz questions will be very closely based upon the assigned questions of that week and the previous week.

Labs: begin week of January 17th and will be offered online in the month of January. Before your first lab ensure you complete the online WHMIS— Workplace Hazardous Materials Information System— lab safety module available on Quercus. This consists of watching lab safety videos and taking a quiz on the material presented in the videos. To be allowed in your first day of lab, you must hand in to your TA a hard copy of your WHMIS certificate dated of current semester (January 2022) and showing your score. You must achieve a score of 80% or higher on the quiz to be allowed in the lab. WHMIS certificates from past semesters will not be accepted. Please come to the lab prepared following instructions provided by your TA and on the lab manual. Please read through these instructions in preparation for each lab. Participation in your registered lab section is mandatory. Failing to complete at least 80% of lab work will result in failing the laboratory component of the course.

Tentative Course Schedule (may be subject to adjustment)

Term dates: Jan 10 – Apr 8
Last date to drop class without academic penalty: Mar 28

Week	Dates	Lecture Topic	Tutorials	Labs
1	Jan 10 - 14	Ch 1: Organic Molecules – Structure and Bonding	—	—
2	Jan 17 - 21	Ch 2: Organic Molecules – Nomenclature and Properties	—	Exp 1
3	Jan 24 - 28	Ch 3: Organic Molecules – Conformational Analysis	Tut 1: Ch 1 & 2	—
4	Jan 31 - Feb 4	Ch 4: Organic Molecules – Stereochemistry and 3D structures	—	Exp 2
5	Feb 8 - 10	Ch 5: Arrow Pushing and Organic Reaction Mechanisms	Tut 2: Ch 3 & 4	—
6	Feb 14 - 18	Ch 6: Acid - Base Reactivity of Organic Compounds	—	Exp 3
7	Feb 21 - 25	Reading Week		
8	Feb 28 - Mar 4	Ch 7: Nucleophilic Additions of Carbonyl Compounds	Tut 3: Ch 5 & 6	—
9	Mar 7 - 11		—	Exp 4
10	Mar 14 - 18	Ch 8: Electrophilic Additions of Alkenes and Analogs	Tut 4: Ch 7	—
11	Mar 21 - 25		—	Exp 5
12	Mar 28 - Apr 1	Ch 11: Nucleophilic Substitutions of Alkyl Halides	Tut 5: Ch 8	—
13	Apr 4 - 8		Tut 6: Ch 11	Lab review

7. Course Evaluation

This course will offer you a variety of activities to assess your learning at multiple points throughout the course. These assessment activities will provide opportunity for you to demonstrate your learning relative to the course learning outcomes and receive feedback to guide future learning.

Participation	(10 %)	in class and/or online participation in lecture and tutorial
Quizzes	(10 %)	10 min each during tutorial sessions
Term Tests (x2)	(20 %)	outside class time, mid-to-late February, and mid-to-late March
Lab	(25 %)	based on lab reports, lab quizzes and lab test
Final Exam	(35 %)	To be scheduled during the examination period

IN ORDER TO PASS THE COURSE

- a student must obtain an overall grade of at least 50%
- a score of at least 40% must be obtained on the final examination
- a passing grade of at least 50% in the laboratory portion of the course must be obtained with at least 80% of lab work being completed

Participation: Your discussion grade will be based on your active learning during class, online discussion forum or a combination of both. In-class live participation involves engaging in clicker questions. The associated grade will be based on consistency not on correctness. Full participation credit will be awarded for 90% class participation to accommodate exceptional missed classes and/or technical difficulties. Online participation involves posting questions related to class material, end of chapter and tutorial questions, as well as comments that add value,

either by answering a question posted by another student (or by me!), or by providing a unique comment or new information. Specific instructions for the forum discussion board will be given on Quercus. Simply repeating information or agreeing/disagreeing will not be given marks. The associated grade will be based both on quantity and quality of posts. Online participation is used only to buffer for inconsistency of in-class participation or for those unable to attend live classes. To receive 4 points out of 5 for the online discussion, a minimum of 6 good posts and 4 good answers to or comments on the posts of others over the course of the term is expected. Forum contributions that are timely will have a greater weight than those that are concentrated in a short timeframe at the last minute (applies to those electing to have their participation grade come from online discussion board).

Quizzes: At the tutorial classes, you will write 10-minute quizzes that count for credit towards your final grade. The lowest quiz score will be dropped from your quiz grade. The quiz questions will be very closely based upon the assigned questions of that week and the previous week.

Term Tests (x2): There will be two, 1 h -1 ¼ h term tests scheduled outside of class with the second term test being cumulative. These tests are scheduled by the registrar office and the corresponding date, time and location will be communicated as soon as information become available. Format, structure, and material covered in the test will be announced nearing the actual test date.

Final Exam: a final 3h cumulative exam will be written during examination period, April 13-29 and scheduled by the registrar office. Exam-related details will be announced as they become available.

8. Learning Support

The following resources may help you identify and address learning needs and difficulties you may encounter in this course as they arise. We are here to help you succeed and advance your learning. Do not hesitate to reach out and I encourage you take advantage of the resources available to you in time of need.

Online Discussion Board is where you should begin to formulate your questions and ideas in relation to the current topic or the course in general extending the benefit to others and preventing duplicate questions. Questions might get answered much quickly by your peers, TAs or myself, so please check back frequently.

Office-Hours: booking link for office-hours is available on Quercus. Please select one time slot. You may book an additional time in the last hour before the start of the session but no later than half an hour before it starts.

9. Course Policies

Communication: The online discussion forum should be used for general inquiries, course content related matter and whenever possible. To receive a response in a timely manner for communication by means of email, use university email account, include CHMB41 in the subject line and sign off with your full name and student ID. Most emails are responded to within 24 hours except weekends.

Missed Labs/Tests: If a lab or test is missed with a valid medical excuse or any other legitimate reason, you must contact me **on** or **before** the day of the missed coursework explaining your situation. You will be required to also submit an [absence self-declaration form](#) through Acorn with supporting documentation to be accommodated, when possible, for a make-up lab / test. Alternatively, more weight will be placed on the lab test / final exam. If your absence has not been validated, a grade of zero will be assigned for any missed course activity.

Use of Course Material: course material to which you are granted access in this course is only to be used for this course. Students do not have permission to upload course material to any external websites or share with others, unless expressly permitted. Please contact me if you require further clarification about using materials from this course in other contexts. Under no circumstances are students permitted to provide anyone with access to own Quercus or Top Hat course sites established for this course. Only students registered in this course are permitted to view, download, upload, comment or otherwise participate in the course sites

Class Recordings: online or on-campus classes may be recorded, and your image, voice, name and participation may be included in the recordings. By remaining in the recorded session, you are consenting to the creation of the recording and its use for educational purposes in the course it was created for. Recorded classes will not be used outside the class context or for other purposes without consent.

10. Academic Policies

Accessibility: The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs. Students with diverse learning styles and needs are welcome in this course. If you have a disability that may require accommodations, please feel free to approach the [AccessAbility Services](#) office as early as possible to register and receive accommodations.

Academic Integrity: is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The [University of Toronto's Code of Behaviour on Academic Matters](#) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor
- Making up sources or facts
- Obtaining or providing unauthorized assistance on any assignment
- Using or possessing unauthorized aids during an exam or test
- Looking at someone else's answers during an exam or test
- Misrepresenting your identity online or during a test or an exam
- Falsifying institutional documents or grades
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes