

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.

Organic Chemistry I

Welcome to CHMB41! Organic chemistry is an exciting subject with applications that are found all around us. 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 relating the subject to your everyday lives.

CHMB41 introduces the electronic structure, nomenclature, and bonding in organic compounds, and studies the mechanisms of various chemical transformations, such as substitution, elimination and addition 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.

Students enrolled in CHMB41H must have previously successfully completed CHMA10H and CHMA11H/CHMA12H. If you do not have these prerequisites, you will be removed from the course by the instructor. If you have any exceptions to this requirement, 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. NOTE: you cannot be enrolled in CHMB41H along with any of the first year courses simultaneously.

Lectures:

Lectures are **in person** and there will be Weboption recordings of the live lectures to watch asynchronously in case of any missed classes, available for up to two weeks after each lecture. Please watch these recordings on time, as they will be removed after two weeks, so make sure you keep up and do not procrastinate!!

Classes start TUES SEPT 6th. Last day of classes will be FRI DEC 2nd.

Lecturer: Dr. Shadi Dalili (EV-562)

Lectures:

TUES, THUR 10-11am AC 223
FRI 8-9am AC 223

Lab Coordinator: Dr. Shadi Dalili (EV-107 or EV-127) during days that labs are running in person.

Email: sh.dalili@utoronto.ca

In person Office Hours (EV 562): starting Sept 13th
Tues 11:30am-12:30pm
Thurs 11:30am-12:30pm

Virtual Office Hours (Zoom): starting Sept 14th
Wed 9-10pm

Please join via Zoom at the designated time and day through our Quercus webpage. Although text chat is possible, it is much easier and faster to communicate if you have a mic and speakers set up. There is also a whiteboard to write/draw on and an option to share files and screens.

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

To login, go to: <https://q.utoronto.ca> and login in with your UTORid. Click on the link for our course (CHMB41H LEC01 Fall 2022). The support site is <https://qinfo.utoronto.ca>

Discussion Board:

An online discussion board will be maintained through Quercus. 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 me (and/or a teaching assistant) to ensure that all questions are answered accurately. The posts will be checked periodically at least twice a week. However, ***the main purpose of the Discussion board is for students to engage with each other and answer each other's questions!*** So please be active and participate by posting and answering questions in the different forums at least once a week.

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 for tutorials, labs, or any other course material 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 using curved arrows
- 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 structures into 3-dimensions and determine *R* or *S* stereochemistry for chiral compounds
- 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
- k) Draw mechanisms for various chemical transformations, such as bond breaking, bond formations, proton and electron transfers, etc

Textbook: *Organic Chemistry: Mechanistic Patterns 2nd Edition* by William Ogilvie, et al.

We will be using **Top Hat** to access the digital textbook: *Organic Chemistry 2e*

If you already have a Top Hat account, you can go to <https://app.tophat.com/e/236613> to be taken directly to our course digital textbook.

If you are new to Top Hat:

Go to <https://app.tophat.com/register/student>

Search for our course textbook with the following join code: **236613**

Your Top Hat textbook is not only easy to use, it is fully mobile too! For more information about the interactive features in the textbook, click here: <https://success.tophat.com/s/article/Student-Using-Your-Textbook>

The price will be \$65 for the text and \$38 for the Top Hat 1-year subscription. If you already have a Top Hat classroom subscription from another course, you don't have to pay for it again. So, after the free trial period, you will be prompted to pay \$65 plus tax for the textbook, not \$99 which is for both together if you are a first time subscriber and account holder in TopHat.

Should you require assistance with Top Hat at any time please contact their Support Team directly by way of email (support@tophat.com), the **in-app support button**, or by calling **1-888-663-5491** (9am-9pm ET). Specific user information may be required by their technical support team when troubleshooting issues.

Chapters: 1-8, 11

Recommended: Molecular Modelling Kit

You are *strongly encouraged* to purchase a molecular model kit from the UTSC bookstore or other bookstores such as Indigo or Chapters. You can also purchase them through Amazon:

https://www.amazon.ca/Molecular-pieces-Advanced-Chemistry-Instructional/dp/B01NCU854K/ref=sr_1_1_sspa?crd=1GO6C51DREVCf&dchild=1&keywords=molecular+model+kit&qid=1595354012&sprefix=molecular%2Caps%2C179&sr=8-1-spons&psc=1&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEzQTdGRjFITzdQT0ZUJmVuY3J5cHRIZElkPUEwNTc4MTY1M1RROFBPSTVBNDdZSiZlbnNyeXB0ZWRBZElkPUEwMDkzMDAyTjhUTzVNNDMyUjE5JndpZGldE5hbWU9c3BfYXRmJmFjdGlvbj1jbGlja1JlZGlhZWN0JmRvTm90TG9nQ2xpY2s9dHJlZQ==

These will become an invaluable tool as the course progresses since several key topics require visualization and manipulations of compounds in three-dimensions.

IN PERSON Labs:

Please note that labs, like the course, will be running IN PERSON. There is no option for online labs.

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

Laboratory Schedule:

Odd numbered labs Sections **PRA0001, PRA0003** etc. (**week 1 students**) begin labs week of **September 12th, 2019**, with the **FIRST** week 1 lab being held on **WEDNESDAY SEPT 14th**. **Even numbered** labs Sections **PRA0002, PRA0004** etc. (**week 2 students**) begin labs week of **September 19th, 2019**, with the **FIRST** week 2 lab being held **WEDNESDAY SEPT 21st**.

The full schedule of labs is posted in your lab manual, and it is imperative that you follow that schedule. If you miss a lab due to misreading the schedule or forgetting the day of your lab, NO MAKEUPS will be allowed.

Changes to lab sections: Any changes to your lab section can be made through ROSI/ACORN *up until noon FRI SEPT 9th*. After this date, the labs will be closed and no more changes can be made. IF you cannot make a lab section due to it being full, you have to find another student willing to switch days with you, as the maximum capacity in each lab section is 16 students. Lab sections can be changed after the deadline only by contacting the lab coordinator and providing proper documentation for the change (i.e. lab/course conflicts shown on timetable, etc)

You will not be allowed to miss a lab on the same day of a CHMB41 midterm and/or submit any late work pertaining to the missed lab.

ABSENCE FROM THE LAB:

If you miss your lab session without a VALIDATED reason, you will be given a zero. It is expected that you attend all labs in your assigned lab time. If you are ill, or have another VALID reason for missing a lab, (e.g. Court attendance required) you must contact the course coordinator at your earliest possible opportunity (weeks ahead, if known). If you do fall ill, email sh.dalili@utoronto.ca before the beginning of the scheduled lab or WITHIN 24 HOURS about your absence.

Submit appropriate documentation to support the reason for your absence within 5 business days of your absence. If the reason for your absence is medical, submit a UTSC Medical Certificate completed by your doctor (downloadable at:

http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf).

Note that the completed medical note must meet the following criteria:

- Your physician must have examined you during the period of illness/injury (not after the fact)
- The missed lab period must fall within the indicated start date and anticipated end date
- The physician must rank your illness as either moderate, serious or severe.

PLEASE NOTE THAT ONLY THE FIRST 3 DEGREES (SEVERE, SERIOUS AND MODERATE) WILL BE ACCEPTED FOR RESCHEDULING OF MAKEUP LABS; MILD AND NEGLIGIBLE DEGREES WILL NOT BE ACCEPTABLE FOR LAB RESCHEDULING

/If no acceptable documentation is received within 5 business days of your absence, you will receive a grade of zero for the missed lab. This zero applies to all aspects of the missed experiment (products/results, notebook, quiz, lab performance)./

Once your absence has been validated, accommodations will be made for your missing grades. When possible, a make-up lab will be scheduled. If a make-up lab cannot be arranged, the grades for the missed experiment will be distributed among the remaining 4 labs. If a student should miss a second lab, NO MAKEUP LAB WILL BE GRANTED, and the grade will be moved to the lab test section of the final exam.

If more than two labs are missed in the course, students will not be allowed to pass the course – regardless of whether the reasons for their absences are valid.

If you need to reschedule a lab due to a conflicting assessment at the same time and day as your lab, you will need to provide documentation to show this, and may do a make-up lab session only under the

conditions set above and if there is space available in another lab session. You will not be allowed to miss a lab on the same day of a CHMB41 midterm and/or do a makeup 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. If you do not have the proper lab notebook writeup and preparation, you will not be allowed to perform the lab.

Lab Manual: The experiments, lab schedule, and appendix material for the lab will be provided electronically through Quercus under the "laboratory materials" section. Note, you may **not** use a lab manual from a previous year as many of the experiments are changed every year. It is imperative that you read and keep copies (either electronically or printed form) of all the sections of the lab manual, as the lab test and quizzes will cover material from all sections. You are responsible for printing the data sheets for each experiment to complete and submit to your TA. Marks will be deducted for failing to submit your datasheets within the deadlines set on Quercus.

Lab Safety Videos: Safety in the laboratory is an extremely important element in the chemistry program. You will be required to complete the WHMIS online course accessible through the Quercus website using your UTORid. It will be different from the course you had to take for CHMA10H3 or CHMA11H3. Instructions on how to access the course will be posted on the CHMB41H Quercus site.

All students registered for a lab section **MUST** watch the WHMIS training videos on Quercus and pass the quiz pertaining to the videos **BEFORE** being allowed to work in the labs. In order to access the WHMIS training video and quiz, follow the steps below:

1. Login to the Quercus portal using your UTORid and access the WHMIS course under "My Courses" in your Quercus portal
2. You will be expected to watch the video (approximately 30 minutes long). Once you have watched the video content, take the quiz. **PLEASE NOTE YOU MUST OBTAIN AN 80% OR HIGHER ON THE QUIZ IN ORDER TO PASS IT**
3. Submit your completed quiz, with your name, student number and score (you can do a screenshot of your web page) to your lab TA **AT LEAST 24 hours** prior to your first lab period.
4. Any labs missed due to handing in the safety quiz data late **CANNOT** be made up and you will forfeit the marks/credit for those labs.
5. Students who have not completed the WHMIS safety course will not be allowed to participate in the lab.

Lab Coats: They are required. They may be purchased from EPSA or Chem Club 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 present: 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 term test or exam. This is a Chemistry Discipline Policy.**

Tutorials:

ALL tutorial sections begin week of **September 12th, 2022**, with the **FIRST** tutorial being held on **THURSDAY SEPT 15th**.

Tutorials take place **EVERY WEEK** (unlike labs which are every other week), run by TAs moderating problem solving and discussions along with group worksheets to be handed in at the end of each session. The tutorial component of CHMB41H is compulsory, and it is expected that all students actively participate and engage with each other and their TAs for problem solving. Each tutorial will include a graded worksheet and/or quiz. The tutorial materials will be provided by your TA in each session. Please check your tutorial schedule and room number on the UTSC Course timetable.

Changes to tutorial sections: Any changes to your tutorial section can be made through ROSI/ACORN *up until noon FRI SEPT 9th*. After this date, the tutorials will be closed and no more changes can be made. IF you cannot make a tutorial section due to it being full, you have to find another student willing to switch days with you, as the maximum capacity in each tutorial section is 40 students.

Absence from the tutorial:

THERE ARE NO MAKEUPS FOR TUTORIALS MISSED. You can drop your THREE lowest grades from the total, so that you may miss up to 3, without losing the 10% worth of the tutorials overall for your final grade.

Policy on missed Labs/Tests/Tutorials: If you miss any course work for any legitimate reason, please upload your self-declaration with appropriate documentation at: <https://www.utoronto.ca/physsci/self-declaration-absence-form-0>

During the pandemic, the university is not requiring students to submit a verification of illness (VOI) form unless there are exceptional circumstances necessitating additional documentation. Instead, students are being asked to use the Absence Declaration tool available through ACORN (<https://www.acorn.utoronto.ca/>). Until the university policy changes, these self-declarations will be deemed acceptable for all medically related absences.

With this Absence Declaration, the grade for missed term work can be redistributed to the other related work.

THERE ARE NO MAKEUPS FOR LABS MISSED. For labs, please *note that students cannot miss more than one lab and pass the lab portion of the course*, which is a requirement for passing the course itself.

THERE ARE NO MAKEUPS FOR TUTORIALS MISSED. You can drop your THREE lowest grades from the total, so that you may miss up to 3 tutorials without penalty (no more than 1 with a quiz)

THERE ARE NO MAKEUPS FOR MISSED MIDTERM. If you miss a midterm the percent worth will be transferred to your Final Exam. NOTE: *YOU CANNOT MISS BOTH MIDTERMS AND PASS THE COURSE.*

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.

E-mail policy:

- Use @utoronto.ca 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 above) so that others can benefit from the responses provided. Questions on the lab and tutorial materials should be directed first to your TA. If you still do need to, you can contact the instructor for lab and tutorials questions.

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) *Center for Teaching and Learning*

The Centre for Teaching and Learning (CTL) is available to support you in your writing, English language, math and stats needs. It offers online tutoring and consultations, and has a variety of helpful online resources. For more information, please visit CTL's Academic Learning Support site at <http://uoft.me/AcademicLearningSupport>.

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

Term Test 1	12%	Early to mid-Oct
Term Test 2	13%	<i>Cumulative</i> Mid to late-Nov
Final Exam	30%	Entire course work

Tutorials (10 x 0.5%) + (5 x 1%)*	10%	Tutorial worksheets and quizzes
Laboratory**	25%	See lab manual online for dates/evaluation
Experiential Learning Project	10%	Details to be announced in class

* 5% for worksheets and 5% for quizzes; 3 tutorials may be missed without penalty (no more than 1 with a quiz), thus you can drop your 3 lowest marks from the overall tutorial mark

** lab component must be passed to pass course

NOTE: In order to pass the course, you MUST pass the laboratory component and at least one of the midterms and final exam (2 out of 3 assessments). If you miss one of the two midterms, you MUST pass the midterm written AND the final exam in order to pass the course.

Online Grades:

Individual grades will be posted on Quercus 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.

Please note: Final exam marks WILL NOT be posted on Quercus.

Marked Term Tests - an announcement will be made when tests are marked. You have one week to check your test with Dr 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 reasons (referenced, if necessary) to support your claim for extra marks.

AccessAbility: 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 us and/or the AccessAbility Services Office as soon as possible. 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. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

Cell Phones: During all live course components, please turn off your cell phones to avoid disruption of the class. If circumstances warrant use of your cell phone and you must receive an emergency call, please inform the instructor in advance at the beginning of the session, and excuse yourself from class to receive the call.

Academic Calendar: Further information about academic regulations and course withdrawal deadlines can be found in the UTSC Calendar. You are encouraged to read this material.

Centre for Teaching and Learning: If you need assistance with effective writing skills, study skills, exam preparation, note taking, or time management, free workshops and advice are available from the Center for Teaching and Learning, which can be reached at: http://www.utsc.utoronto.ca/~ctl/Student_Support/index.html

Computer Use: Ethical use of University computers is expected at the University of Toronto Scarborough. Guidelines are set out in the UTSC calendar. It is expected that the equipment and/or resources accessed in the UTSC library and the computer labs are to be used for academic research, assignments, and course activities only.

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.

The most serious offence is impersonation of another student. This applies to all assessment components for the term work.