CHMB41H3 F

Organic Chemistry I

Fall 2023 Syllabus

## Course Meetings

### CHMB41H3 F

| **Section** | **Day & Time** | **Delivery Mode & Location** |
| --- | --- | --- |
| **LEC01** | Tuesday, 10:00 AM - 11:00 AM Thursday, 9:00 AM - 11:00 AM | In Person: AC 223 In Person: AA 112 |
| **LEC02** | To Be Announced | Online Asynchronous |
| **PRA0001** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 114 |
| **PRA0002** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 114 |
| **PRA0003** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 122 |
| **PRA0004** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 122 |
| **PRA0005** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 123 |
| **PRA0006** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 123 |
| **PRA0007** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 124 |
| **PRA0008** | Wednesday, 9:00 AM - 1:00 PM | In Person: EV 124 |
| **PRA0009** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 124 |
| **PRA0010** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 124 |
| **PRA0011** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 123 |
| **PRA0012** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 123 |
| **PRA0013** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 122 |
| **PRA0014** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 122 |
| **PRA0015** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 114 |
| **PRA0016** | Thursday, 1:00 PM - 5:00 PM | In Person: EV 114 |
| **PRA0017** | Friday, 9:00 AM - 1:00 PM | In Person: EV 124 |
| **PRA0018** | Friday, 9:00 AM - 1:00 PM | In Person: EV 124 |
| **PRA0019** | Friday, 9:00 AM - 1:00 PM | In Person: EV 123 |
| **PRA0020** | Friday, 9:00 AM - 1:00 PM | In Person: EV 123 |
| **PRA0021** | Friday, 9:00 AM - 1:00 PM | In Person: EV 122 |
| **PRA0022** | Friday, 9:00 AM - 1:00 PM | In Person: EV 122 |
| **PRA0023** | Friday, 9:00 AM - 1:00 PM | In Person: EV 114 |
| **PRA0024** | Friday, 9:00 AM - 1:00 PM | In Person: EV 114 |
| **PRA0025** | Friday, 9:00 AM - 1:00 PM | In Person: EV 113 |
| **PRA0026** | Friday, 9:00 AM - 1:00 PM | In Person: EV 113 |
| **PRA0027** | Friday, 9:00 AM - 1:00 PM | In Person: EV 112 |
| **PRA0028** | Friday, 9:00 AM - 1:00 PM | In Person: EV 112 |
| **TUT0001** | Thursday, 5:00 PM - 6:00 PM | In Person: HW 308 |
| **TUT0002** | Thursday, 5:00 PM - 6:00 PM | In Person: AA 208 |
| **TUT0003** | Thursday, 6:00 PM - 7:00 PM | In Person: HW 308 |
| **TUT0004** | Thursday, 6:00 PM - 7:00 PM | In Person: AA 208 |
| **TUT0005** | Thursday, 7:00 PM - 8:00 PM | In Person: HW 308 |
| **TUT0006** | Thursday, 7:00 PM - 8:00 PM | In Person: AA 207 |
| **TUT0007** | Thursday, 7:00 PM - 8:00 PM | In Person: AA 205 |
| **TUT0008** | Thursday, 7:00 PM - 8:00 PM | In Person: AA 209 |
| **TUT0009** | Thursday, 7:00 PM - 8:00 PM | In Person: AA 208 |
| **TUT0010** | Thursday, 7:00 PM - 8:00 PM | In Person: AA 206 |

Refer to ACORN for the most up-to-date information about the delivery and location of the course meetings.

## Course Contacts

**Course Website:** <https://q.utoronto.ca/courses/310409>

**Instructor:** Dr. Nirusha Thavarajah

**Email:** [nirusha.thavarajah@utoronto.ca](mailto:nirusha.thavarajah@utoronto.ca)

**Office Hours and Location:** Tuesdays 11:10 am-12:10 pm, Wednesdays 1:00-2:00 pm and Thursdays 11:10 am-12:10 pm at SW 155

**Additional Notes:** Lecturing from September 5th, 2023-December 5th , 2023

**Instructor:** Dr. Shadi Dalili

**Email:** [sh.dalili@utoronto.ca](mailto:sh.dalili@utoronto.ca)

**Office Hours and Location:** Wednesdays 1:30-2:30 pm, Thursdays 11 am-12noon, Fridays 1:30-2:30 pm EV 562

**Additional Notes:** Coordinating Labs from September 5th, 2023- December 5th, 2023

## Course Overview

This course 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. The course includes weekly tutorials and a four hour laboratory every other week.

Welcome to CHMB41H3! This course is fundamental to all the chemistry, biochemistry, human biology, and biological chemistry programs. It provides students with the foundational knowledge in understanding organic compounds' chemical structures, properties, and reactions and prepares students for many career fields, including medicine, pharmaceutical, and nanotechnology. The course will begin with basic concepts on carbon's unique properties, electronic structure, valence, hybridization and functional groups and transition into explaining bonding and molecular structure, nomenclature, organic acids and bases, stereochemistry, and reaction mechanisms. The reaction mechanisms will include various chemical transformations including substitution, elimination, and radical reactions.

This course includes a four-hour laboratory every other week and weekly tutorials that require mandatory in-person attendance. 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.

### Course Learning Outcomes

1. Identify and name major classes of organic compounds
2. Describe and distinguish between different types of bonding and their effect on the physical properties of molecules
3. Give examples of different types of nucleophiles and electrophiles and show electron movement in reactions using curved arrows
4. Predict major and minor products of reactions based on reaction data and explain why/how they are formed
5. Compare and contrast thermodynamic versus kinetic products and conditions for the formation of each
6. Classify reactions as substitution, elimination, addition, etc and choose/distinguish between factors and conditions that favour one type versus others
7. Convert 2-dimensional chiral structures into 3-dimensions and determine R or S stereochemistry
8. Distinguish between enantiomers, diastereomers, meso and other forms of isomers
9. Anticipate and validate the stereochemical outcome of reactions involving stereocenters
10. Propose and design syntheses of given compounds using retrosynthetic analysis

**Prerequisites**: [CHMA11H3 or CHMA12H3]

**Corequisites**: None

**Exclusions:** CHM136H1, CHM138H1, CHM151Y1, CHM242H5

**Recommended Preparation**: None

**Credit Value:** 0.5

## Course Materials

**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; Ogilvie et al.

Organic Chemistry, 2e (TH Bundle); Chapters 1-8, & 11.

ISBN: 9781774945421

We will be using Top Hat to access the digital textbook: if you already have a Top Hat account, you can go to ([https://app.tophat.com/e/584594](http://invalid.uri)) to be taken directly to our course digital textbook.

If you are new to Top Hat: Go to [https://app.tophat.com/register/student](http://invalid.uri)

Search for our course textbook with the following **join code: 584594**

For more information about the interactive features in the textbook, click here: [https://success.tophat.com/s/article/Student-Using-Your-Textbook](http://invalid.uri)

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

Molecular Model kits are highly recommended; you are strongly encouraged to purchase a molecular model kit from the UTSC bookstore or other bookstores such as Indigo or Chapters. These will become invaluable tools as the course progresses since several key topics require visualization and manipulation of compounds in three dimensions.

**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 in 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 hand to your TA. Marks will be deducted for failing to bring your datasheets on the day of your lab.

## Marking Scheme

| **Assessment** | **Percent** | **Details** | **Due Date** |
| --- | --- | --- | --- |
| **Term Test 1** | 15% |  | 2023-10-05 |
| **Term Test 2** | 20% |  | 2023-11-09 |
| **Tutorial Work Sheets & Quizzes** | 10% |  | 2023-09-07,2023-09-14,2023-09-21,2023-09-28,2023-10-05,2023-10-19,2023-10-26,2023-11-02,2023-11-09,2023-11-16,2023-11-23,2023-11-30 |
| **Laboratory** | 25% |  | No Specific Date |
| **Final Exam** | 30% | The final exam is cumulative. | Final Exam Period |

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

### Late Assessment Submissions Policy

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

Persons who miss a term testare expected to e-mail Dr. Thavarajah immediately. Documentation, which is the UTSC medical note, **must be given within one week** for approval. The same rules apply to medical notes for missed term work as for missed labs (see the section on laboratories). If the documentation is insufficient, you may be required to obtain further, signed, paperwork. With the Absence Declaration and valid supporting documentation, the grade for missed term work can be redistributed to the other related work, AT THE INSTRUCTOR'S DISCRETION.

THERE ARE NO MAKEUPS FOR MISSED TERM TESTS. If you miss a term test the percent worth will be evenly distributed between the written term test and the final exam. NOTE: YOU CANNOT MISS BOTH MIDTERMS AND PASS THE COURSE.

**Please note that the missed Final Exams are handled by the Registrar's Office and should be declared on eService:** [**http://www.utsc.utoronto.ca/registrar/missing-examination**](http://www.utsc.utoronto.ca/registrar/missing-examination)

Check the UTSC Calendar for instructions and deadlines.

**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 tutorials without penalty (no more than 1 with a quiz).

**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, e-mail [sh.dalili@utoronto.ca](mailto:sh.dalili@utoronto.ca) before the beginning of the scheduled lab or WITHIN 24 HOURS about your absence.

Submit appropriate absence declaration through ACORN and the department website (<https://www.utsc.utoronto.ca/physsci/chemistry-resources>) within 24 hours of missing a lab.

\*/If no acceptable documentation is received within 2 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 formal lab report mark of the overall grade.

**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 as a CHMB41 midterm and/or do a makeup lab.

## Policies & Statements

### Use of Generative Artificial Intelligence Tools

Students may use artificial intelligence tools, including generative AI, in this course as learning aids or to help produce assignments. However, students are ultimately accountable for the work they submit.  
  
Students may not use artificial intelligence tools for taking tests, writing research papers, creating computer code, or completing major course assignments. However, these tools may be useful when gathering information from across sources and assimilating it for understanding.  
  
The knowing use of generative artificial intelligence tools, including ChatGPT and other AI writing and coding assistants, for the completion of, or to support the completion of, an examination, term test, assignment, or any other form of academic assessment, may be considered an academic offense in this course. Students may not copy or paraphrase from any generative artificial intelligence applications, including ChatGPT and other AI writing and coding assistants, to complete written assignments or any other form of assessments in this course. The ideas and knowledge synthesis that you present in your assessment must be entirely yours. This course policy is implemented to promote your learning and academic advancement to reach the course learning goals.

### Video Recording and Sharing (Download and Re-use Prohibited)

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.  
  
Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor.  
  
For questions about the recording and use of videos in which you appear, please contact your instructor.

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Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor.  
  
For questions about the recording and use of videos in which you appear, please contact your instructor.

### Plagiarism Detection Tool

Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>).

### Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.  
  
Potential offences in papers and assignments include 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.  
  
On tests and exams, cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University.

### Equity, Diversity and Inclusion

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.  
  
The University of Toronto is a richly diverse community and as such is committed to providing an environment free of any form of harassment, misconduct, or discrimination. In this course, I seek to foster a civil, respectful, and open-minded climate in which we can all work together to develop a better understanding of key questions and debates through meaningful dialogue. As such, I expect all involved with this course to refrain from actions or behaviours that intimidate, humiliate, or demean persons or groups or that undermine their security or self-esteem based on traits related to race, religion, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, gender identity, gender expression, age, marital status, family status, disability, receipt of public assistance or record of offences.

### Accommodations

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.  
  
AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email [ability.utsc@utoronto.ca](mailto: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.

### Use of Generative Artificial Intelligence Tools

Students may use artificial intelligence tools, including generative AI, in this course as learning aids or to help produce assignments. However, students are ultimately accountable for the work they submit.  
  
Students may not use artificial intelligence tools for taking tests, writing research papers, creating computer code, or completing major course assignments. However, these tools may be useful when gathering information from across sources and assimilating it for understanding.  
  
The knowing use of generative artificial intelligence tools, including ChatGPT and other AI writing and coding assistants, for the completion of, or to support the completion of, an examination, term test, assignment, or any other form of academic assessment, may be considered an academic offense in this course.

### Recording of Classroom Material by Students

Recording or photographing any aspect of a university course - lecture, tutorial, seminar, lab, studio, practice session, field trip etc. – without prior approval of all involved and with written approval from the instructor is not permitted.

### University Land Acknowledgement

I wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.