

## Course Syllabus – CHEM 2422 (Winter 2025) Introductory Organic Chemistry: Reactivity

<b>Instructor:</b>	Ghislain Deslongchamps	<b>Class Day(s):</b>	MWF
<b>Email:</b>	ghislain[at]unb.ca	<b>Time:</b>	9:30-10:20
<b>Phone:</b>		<b>Class Location:</b>	Carleton 106
<b>Office Location:</b>	Toole 237	<b>Office Hours:</b>	See below

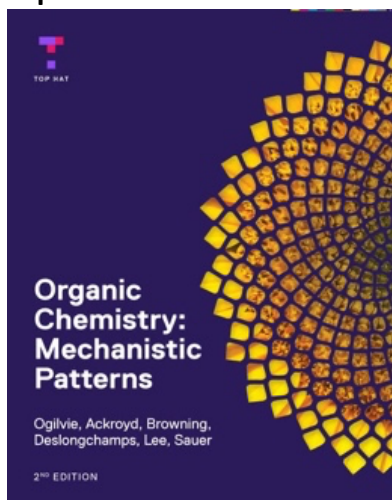
*We recognize and respectfully acknowledge that all UNB course interactions take place on surrendered and unceded traditional lands of the Wolastoqiyik.*

### About the Course

#### Course Description:

**Introductory Organic Chemistry: Reactivity.** 3 ch (3C) Topics include: electrophilic addition to alkenes and their synthetic utility, aromaticity, electrophilic and nucleophilic aromatic substitution reactions, additions to the carbonyl group. **Course Prerequisite:** CHEM 2421.

#### Required textbook:



**Organic Chemistry - Mechanistic Patterns**, W. Ogilvie, N. Ackroyd, C. S. Browning, G. Deslongchamps, F. Lee, E. Sauer, 2<sup>nd</sup> Ed., Top Hat, 2021, [ISBN-13: 9781774940419](https://www.amazon.com/dp/9781774940419).

This comprises the fully interactive eTextbook with 21 chapters, integrated Organic ChemWare (G. Deslongchamps, 2021), required online homework, and practice problem sets.

[https://docs.google.com/document/d/1XUzcwePS3vefwvjlgNHpVHnDJIAzO75tHXSS1NN\\_Ho](https://docs.google.com/document/d/1XUzcwePS3vefwvjlgNHpVHnDJIAzO75tHXSS1NN_Ho)

The join code for this course is **021370**.

Note: This eTextbook was used for CHEM 2421 in 2023 and 2024. All previous students have continued access to their account at no cost.

#### Optional course resources:

- **Avogadro** (<https://avogadro.cc/>) is a free molecular viewer for interacting with 3D models used in class. PC and Mac installers are available in the course D2L in the 3D Models folder.
- **MolView** is a free online molecular modeling kit (draw 2D molecules, convert to 3D structures, etc.): <https://app.molview.com>
- Physical molecular modeling kit (UNB Bookstore or <https://www.amazon.ca>).

**Course Topics:**

Course topics will be selected from the following list:

- Chapter 1-7 review
- Chapter 8:  $\pi$  Bonds as Nucleophiles
- Chapter 9: Conjugation and Aromaticity
- Chapter 10: Synthesis Using Aromatic Materials
- Chapter 11: Displacement Reactions on Saturated Carbons
- Chapter 12: Formation of  $\pi$  Bonds by Elimination Processes
- Chapter 15:  $\pi$  Bond Electrophiles Connected to Leaving Groups

**Learning outcomes:**

- Outcome 1: For a series of organic reactions, you will gain a fundamental understanding of their mechanistic patterns and the factors that control reactivity and stereoselectivity:
  - addition of nucleophiles to  $\pi$  bonds
  - addition of electrophiles to  $\pi$  bonds
  - electrophilic and nucleophilic aromatic substitutions
  - nucleophilic substitutions
  - elimination reactions
  - reactions of carboxylic acid derivatives
- Outcome 2: You will be able to predict the product of an organic reaction given reactants, and reaction conditions. Likewise, given reactants and products, you will be able to select appropriate reaction conditions to carry out the transformations.
- Outcome 3: You will be able to predict the stereochemical outcome of organic reactions.
- Outcome 4: You will gain a fundamental understanding of organic synthesis and will be able to devise short syntheses of compounds based on the set of reactions covered in the course.

Successfully achieving all the course outcomes and expectations requires that you honour the course policies, attend regular classes, and complete all coursework in good faith and on time.

**Live lectures**

This course will be delivered exclusively via live lectures in **Carleton 106** every MWF 9:30-10:20. **Class attendance is a critical factor for success in this course.** Lectures may include course material that is not in the Top Hat eTextbook. Some lecture slots may be reserved for tutorials or class exercises. Lecture slides will be available as pdf files prior to each lecture for printing/annotating.

## Communicating with your instructor / Office hours

### Communicating with your instructor:

- If you have questions or comments of any type (courses, academic advising, or anything else), please email me anytime at [ghislain@unb.ca](mailto:ghislain@unb.ca). You can expect an email response within a day. Emails received on weekends may not be replied until Monday.
- A Teams meeting can also be arranged if your query cannot be addressed by email.
- Brightspace Desire2Learn (D2L) will be used to provide course materials and other information. However, do not use the D2L communication features; they will not be monitored.
- Likewise, do not contact me through Teams outside of normal class or office hours unless an appointment to do so was previously setup.

### Office hours:

- **I will be available in my office (Toole 237) every Monday and Wednesday from 10:30-12:30. My MS Teams will also be on during that period.** If your course schedule conflicts with this time slot, please email me to arrange a face to face or Teams meeting at another time.

## Online Materials

### Top Hat interactive eTextbook

This fully interactive eTextbook includes all 21 textbook chapters, 185 Organic ChemWare animations as well as graded online homework and other learning activities. Information on how to purchase, register, and access the eTextbook can be found at:

[https://docs.google.com/document/d/1XUzcwePS3vefwvjlgNHpVHnDJIAzO75tHXSS1NN\\_Ho](https://docs.google.com/document/d/1XUzcwePS3vefwvjlgNHpVHnDJIAzO75tHXSS1NN_Ho)

The join code for this course is **021370**.

Top Hat student support:

- Email: [support@tophat.com](mailto:support@tophat.com)
- Live Chat: Located in the top right corner of your Top Hat Account
- Support Success Centre: <https://support.tophat.com/s/>
- Phone: (888) 663-5491

### D2L Brightspace

Online course materials can be found in D2L. You can access it through the MyUNB portal for single login to all UNB services (<https://my.unb.ca>) or directly at <https://lms.unb.ca/>.

Online components in D2L may include:

- Class information
- Weekly Schedule
- Molecular models
- PowerPoint lectures (pdf)
- Articles (pdf)
- Assignment and test grades

## Course Evaluation, Grading, and Course Policies

### Course Evaluation Scheme

Item	Value	Date	Details
Top Hat Assignment #1	10%	Feb. 7, 2025	Due Feb. 10, 9:30 am. Online assignment on Top Hat. Instructions will be provided in class.
Midterm exam	35%	Feb. 21, 2025	9:30-10:30. Carleton-106. Covers preceding $\approx$ 6 weeks of classes.
Top Hat Assignment #2	10%	Mar. 14, 2025	Due March 17, 9:30 am. Online assignment on Top Hat. Instructions will be provided in class.
Final exam	45%	Exam period, TBA	3-hour exam. Closed-book. Covers <u>all</u> topics.

During tests and final exam, access to any resources, printed or online, as well as any form of communication, is strictly forbidden.

### Grading:

**A+** 90%, **A** 85%, **A-** 80%, **B+** 74%, **B** 68%, **B-** 62%, **C+** 56%, **C** 50%, **D** 40%, **F** <40%

## Course Policies

### Expectations for participation and attendance

It is expected that students will attend all the live lectures. These may include course material not available on D2L. Students are expected to participate and to contribute to classroom discussions: <https://www.unb.ca/academics/calendar/undergraduate/current/regulations/universitywideacademicregulations/i-generalcourseregulation/a.classattendance.html>.

### Extensions or penalties for late work, missed exams, late for test/exam

There will be no extensions for online assignments and no make-up opportunities for in-class tests. A missed assignment or test will have its value automatically transferred to that of the final exam. <https://www.unb.ca/academics/calendar/undergraduate/current/regulations/universitywideacademicregulations/i-generalcourseregulation/a.classattendance.html>.

### Policy on extra credit

Students may not receive extra credit for any component of this course. The final course grade will be strictly calculated based on accumulated assignment, test, and final exam scores.

### Class Recording and Copyright

Video/audio recording of lectures is strictly prohibited. In the case of private use by students with documented disabilities, the instructor's consent will not be unreasonably withheld.

Distribution of course notes, videos or other class materials provided by the instructor by any means is strictly prohibited. Violations are an infringement of copyright and are absolutely prohibited and subject to academic penalties (see Academic Offences below).

### Privacy Statement for Online Course Recordings

- The content shared by your instructor is subject to copyright and cannot be shared without the explicit permission of the copyright owner, which may include but not be limited to the course instructor, their colleagues, textbook publishers, and multimedia vendors.
- Any recordings of online classes provided by your instructor are for your personal use for course purposes only and not to be shared with others.
- Sharing of any personal information, including but not limited to personal views and opinions with others, other than for course purposes, is not permitted and may violate UNB's Policy for the Protection of Personal Information and Privacy.
- Personal opinions, views, and commentary provided during online delivery may be considered personal information, which requires the consent of the person who provided it to share it ethically and legally. Course videos are to be used only to help you learn the course material.

### Email Etiquette

Please view this short video on email etiquette:

[https://www.youtube.com/watch?v=r\\_jL94Q66E4&feature=youtu.be](https://www.youtube.com/watch?v=r_jL94Q66E4&feature=youtu.be)

## Key Technologies

### Microsoft 365

As a UNB student you are entitled to install Microsoft 365 (M365), which includes Word, Excel, PowerPoint, Teams, OneNote, and others. M365 can be accessed through your MyUNB portal ([my.unb.ca](http://my.unb.ca), UNB login required).

Note: M365 can be run as cloud-based applications on a web browser or as traditional standalone applications that can be downloaded and installed on your computer (PC/Mac). Some of these are available as simpler apps for mobile platforms (iOS/Android) but may not support all the features of their standalone counterpart.

<https://unbcloud.sharepoint.com/sites/UNBO365/SitePages/Studying-Remotely.aspx>

*(UNB login required)*

M365 includes MS Teams which, on occasion, may be used to communicate with students regarding student questions and discussions.

### Desire2Learn Brightspace (D2L)

D2L is UNB's learning management system. Information about using D2L is available at:

<https://www.unb.ca/fredericton/cetl/tls/educational/d2l/student-resources.html>

For D2L technical support, contact: [d2l@unb.ca](mailto:d2l@unb.ca)

**Avogadro** (<https://avogadro.cc/>) is a free molecular viewer for interacting with 3D models used in class. PC and Mac installers are available in the course D2L in the “3D Models” folder. All 3D molecular models shown in class can be downloaded from that folder (ex. filename.mol2) and opened in Avogadro for study purposes.

**MolView** (<https://app.molview.com>) is a free online application for sketching and viewing small molecular structures. Draw in 2D and convert to 3D structures.

## Technical Requirements

### Technical Preparation and Requirements

Please note that you are responsible for ensuring that the technical requirements are met so that you can fully participate in all course learning activities.

Whether studying on or off-campus, all students must have access to a PC, Mac (or tablet) capable of internet access. Information on IT services and software for UNB students can be found at:

<https://unbcloud.sharepoint.com/sites/ITServices/SitePages/StudyRemotely.aspx>

## General Technical Support

For general technical support, please contact Information Technology Services (ITS) Help Desk at [helpdesk@unb.ca](mailto:helpdesk@unb.ca) or by phone (UNBF: 457-2222, UNBSJ: 657-2222 or visit in person at the Harriet Irving Library Learning Commons.

## Library information

UNB Libraries ([www.lib.unb.ca](http://www.lib.unb.ca)) supports your learning and academic success. Librarians will help you navigate academic resources and guide you through your research and information needs. Examples of this support include finding reliable sources for your assignments, searching the scholarly databases, and offering advice on the quality of your research. A vast collection of resources is available to you online and in print at lib.unb.ca. Research help is available by phone, e-mail, chat, and in-person. The Harriet Irving Library (HIL) is the main library at UNBF. The UNBSJ library is in the Hans W. Klohn Commons.

The libraries offer quiet and group study space. Book a Group Study Room online at [http://www.lib.unb.ca/services/group\\_study.php](http://www.lib.unb.ca/services/group_study.php)

## Equity, Diversity, and Inclusion

- UNB embraces the idea of an intellectual community enriched by diversity along a number of dimensions, including gender, gender identity, sexual orientation, age, culture, ability, race, ethnicity, language, religion, and nationality. It is my intent that all students be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity students bring to this class be viewed as a resource, strength, and benefit. I intend to provide materials and activities

that are respectful of diversity. Your suggestions are encouraged and appreciated. In addition, if any of our class meetings conflict with your religious holidays, please let me know so that we can make arrangements for you.

- Location of gender-neutral washrooms on campus:

<https://www.unb.ca/humanrights/resources/index.html>

- Office of Human Rights and Positive Environment: <https://www.unb.ca/humanrights/index.html>

### Services for Students with Disabilities

If you are a student with a disability of any type (physical, mental, learning, medical, chronic health, sensory; visible or invisible) you are strongly encouraged to register with the UNBF Student Accessibility Centre (SAC) (<https://www.unb.ca/fredericton/studentservices/academic-success/accessibility-centre/>) so that you may receive appropriate services and accommodations. Once you are registered with SAC, the instructor will be notified via the UNBF SAC Accommodation Letter of your specific accommodations. If you would like to discuss your particular needs with the instructor, please book a time for a confidential appointment.

## Plagiarism and Academic Offences

The university has carefully defined what it considers plagiarism, and these regulations are found in the UNB calendar section B.19 IX Academic Offences:

Plagiarism includes:

1. quoting verbatim or almost verbatim from any source, regardless of format, without acknowledgement;
2. adopting someone else's line of thought, argument, arrangement, or supporting evidence (such as, statistics, bibliographies, etc.) without indicating such dependence;
3. submitting someone else's work, in whatever form (essay, film, workbook, artwork, computer materials, etc.) without acknowledgement;
4. knowingly representing as one's own work any idea of another.

**NOTE:** In courses which include group work, a penalty may be imposed on all members of the group unless an act of plagiarism is identified clearly with an individual student or students.

Please note that plagiarism is not difficult to spot; web sources can be quickly traced through a variety of specialty search engines. Professors are required to follow the disciplinary procedures outlined in the calendar (B.17. IX. A. 1-2).

**OTHER ACADEMIC OFFENCES** you need to be aware of include:

1. Cheating on examination, tests, assignments, or reports, including but not limited to:  
Impersonating a candidate at an examination or test or in connection with any assignment in a course or availing oneself of the results of impersonation.  
Obtaining, through theft, bribery, collusion, purchase, or other improper manner,
  1. an examination or test paper prior to the date and time for writing the examination or test;

2. academic materials belonging to another person, e.g., laboratory reports, assignments, papers, computer materials, datasets.
2. Falsifying or knowingly submitting false assignments or credentials, records, transcripts, or other academic documents.
3. Submitting a false health or other certificate.
4. Submitting identical or substantially similar work for one course or program of study, which has been or is being submitted for another course or program of study, without the prior express knowledge and approval of the instructors.
5. Interfering with the right of other students to pursue their studies.
6. Knowingly aiding or abetting any of the above offences.
7. Tampering with, or altering, in any deceptive way, work subsequently presented for a review of the grade awarded.

Penalties for plagiarism and other academic offences range from a minimum of F (zero) in the assignment, exam, or test to a maximum of suspension or expulsion from the University, plus a notation of the academic offence on the student's transcript.

For more information, please see the Undergraduate Calendar, University Wide Academic Regulations, Regulation VIII.A, or visit: <http://go.unb.ca/tlsPb0XX5>. It is the student's responsibility to know the regulations.