

Department of Chemistry — Syllabus — Winter 2024

Chemistry 2021: Intro Organic Chemistry II, 3.0

In this course we will continue learning about the **reactivity** of organic molecules, their reactions and reaction **mechanisms**, and the **principles** that govern this reactivity.

Course Contact Information

Section Lecturer: **Dr. Lana Hébert**

Instructor's Email: Lana.Hebert@YorkU.ca

Address Me As: **Professor Hébert**

Personal Pronouns: she/her/hers

Phone: (416) 736-2100 ext. 31020

Instructor's Office Location: CB 218

Student Hours: MWR 15:00–16:30

What are “Student Hours”?

Student hours are dedicated times through the week for the course instructor to meet with YOU. Pop in to introduce yourself, ask questions, or discuss lecture content.

Note: Alternate times available by appointment.

Course Format: This course will be **in-person only**. You are expected to attend and participate in lectures, tutorials, and labs. Lecture recordings will be posted within 72 h of lecture.

Important Note

Do not schedule any conflicts with any other courses: lecture & tutorial times are used for participation & quizzes.

Course Coordinator: **Dr. Lana Hébert**

Coordinator's Email: Organic@YorkU.ca

Coordinator's Office: CB 218

Prerequisites: SC/CHEM 2020 3.00

Class Times: Tues. & Thurs., 5:30–6:50 pm

Class Location: Vari Hall C (Tuesdays)
Lassonde B (Thursdays)

Tutorial Times: Friday 10:30 – 11:20 am

Tutorial Location: Lassonde B

Laboratory Technician: Dr. Olga Girina

Email: OGirina@YorkU.ca

Laboratory Times: Vary by lab section & week; check the [schedule on eClass](#).

[Click Here for Study Spaces on Campus](#)

[Click Here for a Map of Campus](#)

**** Have Administrative Course Issues or Questions? ****

Contact the CHEM 2021 Course Coordinator (**Dr. Hébert**) at Organic@YorkU.ca.
All administrative course decisions are made by the course coordinator.

Course-Wide Learning Objectives:

Upon successful completion of this course, a competent student should be able to:

1. Describe & interpret spectroscopic data such as ^1H or ^{13}C NMR spectra, infrared spectroscopic data, or mass spectrometric data.
2. Logically deduce simple organic molecular structures making use of NMR & IR spectroscopies, mass spectrometry, and other data.
3. Propose logical multi-step syntheses of organic molecules based on concepts learned in CH2020 and CH2021.
4. Draw and interpret chemical reaction equations involving a variety of reagents and molecular structures.
5. Draw and logically interpret reaction mechanisms for various reactions including electrophilic aromatic substitutions, eliminations, acylation, nucleophilic substitutions ($\text{S}_{\text{N}}1/\text{S}_{\text{N}}2$), & reactions of radicals.
6. Propose appropriate reaction conditions, including reactants, reagents, catalysts, products, and appropriate solvents for a variety of synthetic transformations.
7. Apply stability–reactivity principles to predict, explain, and rank the relative speeds of different chemical reactions by applying structure-dependent patterns in stability combined with application of mechanism pattern recognition.
8. Use appropriate chemical nomenclature when discussing organic reactions, reaction mechanisms, and chemical structures; necessarily this involves a using mixture of IUPAC & common (or trivial) names.

Learning Materials

Textbook: Ogilvie, *et al.* (2022). 2nd ed. “Organic Chemistry: Mechanistic Patterns”

Lab Manual: First experiment posted on eClass; hard copy manual provided in first lab.

Website (eClass): [CHEM 2021 eClass Site](#)

We hold you to **high academic standards** in this course. We expect that you will:
attend all lectures, labs, and tutorials,
complete all assessments honourably, & ask for help when needed.

Course Assessment Breakdown

COMPONENT OF GRADE	WEIGHT
Quizzes (8 “Quizzes”)	12%
Lecture Participation (iClicker)	10%
Midterms (2)	28%
Final Exam	30%
Laboratory	20%

Quizzes [attempting 8 Tutorial Quizzes = 12%]

There will be a tutorial based Crowdmark “Quiz” each tutorial session. You must attend and work on the assigned tutorial worksheet for 8 out of 11 tutorials.

An additional “practice” quiz (not counted for marks) will be held during the first tutorial session of the semester. **Quiz questions will not be graded for accuracy.** You will receive a grade for attempting and putting in an honest effort on 8 out of 11 tutorial quizzes. The tutorial quiz will release on eClass just prior (10 min) to the start of your tutorial session. You will be given a Crowdmark QR coded sheet, on which you must place some of your initial responses to the quiz questions. This sheet will not be graded for accuracy of responses, but you must submit the Crowdmark quiz sheet to your instructor when they dismiss the tutorial session (not before!) You may be allowed to work alone, in pairs, in groups, or as a class, and you may use any resource available to you (laptop, notes, tablet, *etc.*). You must be physically present to respond to the quiz. You must show up on time and not leave the tutorial until dismissed by your instructor. No Crowdmark quiz sheets will be collected prior to dismissal by your instructor. **You must attend 8 Tutorial Quizzes to obtain the 12%.** If you attend less than 8 Tutorial Quizzes, you will obtain a 0% Quiz Grade. No accommodations will be made for self-made scheduling conflicts.

Lecture Participation/iClicker Polls [80% attendance = 10%]

In-class participation grades will be assessed *via* iClicker.
Use the section-specific join code (found on eClass) to participate in lectures.

Instructors will, systematically, take in-class attendance and/or provide timed polling questions for students to answer using iClicker (it will not be possible to answer from outside of class). Accuracy will not be graded for these questions and collaboration is encouraged. Participating 80% of the time will earn you the full 10/10 towards your final course grade; participating 79% or less of the time will earn the pro-rated fraction of 10% (*i.e.*, 40% participation earns 5/10). Since you can miss 20% of the lectures and receive 100% of the grades, and no points are awarded for accuracy, there will be **no participation grade accommodations nor adjustments for any reason whatsoever**.

A. Laboratories [Four labs (varying weights) = 20%]

Introductory lab information needed for the first lab (Pre-Lab 1, and the Lab 1 Procedure) can be found on eClass.

You must complete the Lab Student Conduct Agreement & watch the lab safety video on eClass to access the lab materials and lab schedule available on the course eClass website. You must attend and complete all labs. A hardcopy lab manual will be available during the first lab. Passing the laboratory component independently (*i.e.*, 10/20 available lab marks) is required to pass the course.

B. Midterm Examinations [2 midterms × 14% each = 28%]

Two in-person midterm examinations are scheduled and will be written on Sundays at 1:00 pm.

Each will be designed to take 45 minutes each, but you will have a full 75 minutes to complete them. The midterm exam format will consist of multiple choice, short-answer explanations, and problem-solving.

Missed Midterm Examination Policy

If you miss a midterm exam, for any reason whatsoever, the value of the midterm exam will be added to the value of the final exam.

Examination Reference Sheet:

You are allowed to use one, self-constructed, handwritten, double-sided, 8.5 x 11"-sized paper-based "reference sheet" during midterm and final exams. Detailed reference sheet regulations [can be found on eClass](#).

C. Final Exam [30%]

An in-person, 180-minute final examination, worth 30% of the final course grade, will take place during the Final Examination period and will be scheduled by the Registrar's Office. The final exam *must be written* to get a grade for the course.

Missed Final Examination Policy

If you miss the final exam due to an unpredicted reason, you must contact the [Course Coordinator](#) within two (7 days) of the final exam with a completed [Deferred Standing Agreement \(DSA\)](#) form.

Course Schedule

WEEK #	SCHEDULED ASSESSMENTS
1	Practice Quiz (not counted)
2	Tutorial Quiz #1
3	Tutorial Quiz #2
4	Tutorial Quiz #3
5	Tutorial Quiz #4
6	Tutorial Quiz #5
7	READING WEEK NO LECTURES NO TUTORIAL QUIZ
8	Sunday, Feb 25th: Midterm Exam #1 Tutorial Quiz #6
9	Tutorial Quiz #7
10	Tutorial Quiz #8
11	Sunday, Mar 24th: Midterm Exam #2 Tutorial Quiz #9
12	Friday, Mar 29: No Tutorial/Class (GOOD FRIDAY)
13	Tutorial Quiz #10 Tutorial Quiz #11
Apr 10–25: WINTER EXAMINATION PERIOD	

Course Topics by Textbook Chapters Covered

Chapter	Chapter Title & Topic (Ogilvie <i>et al.</i> , 2 nd ed.)
Ch. 10	Synthesis Using Aromatic Materials: <i>Electrophilic Aromatic Substitution</i>
Ch. 11	Displacement Reactions at Saturated Carbons: <i>S_N1 and S_N2 Substitution Reactions</i>
Ch. 12	Formation of π-Bonds by Elimination Processes: <i>Elimination & Oxidation Reactions</i>
Ch. 13	Structure Determination I: <i>Nuclear Magnetic Resonance Spectroscopy</i>
Ch. 14	Structure Determination II: <i>Infrared Spectroscopy & Mass Spectrometry</i>
Ch. 15	π Bond Electrophiles Connected to Leaving Groups: <i>Carboxylic Acids & Derivatives</i>
Ch. 16	π Bond Electrophiles Connected to Hidden Leaving Groups: <i>Acetals & Derivatives</i>
Ch. 19	Radicals: <i>Halogenation, Polymerisation, & Reduction Reactions</i>

University Policies

Academic Integrity & Academic Misconduct

Academic misconduct undermines the values of honesty, trust, respect, fairness, and responsibility that we expect in this class. There will be zero tolerance for instances of **Academic Misconduct** such as:

- Plagiarism (passing off anyone/anything else's work as your own)
- Unauthorized collaboration on assignments, quizzes, and exams
- Uploading your own work to cheating websites (*e.g.*, CourseHero) or your professor's notes, tests, resources, *etc.*

For more information on what academic integrity is and why it is important see [this website](#). Information on the process of investigations into breaches of academic honesty can be [found here](#).

Important Note from the FSc Committee on Examinations & Academic Standards (CEAS): Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (*e.g.*, Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. Whenever a student submits work obtained through an external site (*e.g.*, Course Hero, Chegg), the **submitting student will be charged with plagiarism** and the **uploading student will be charged with aiding and abetting**. To avoid this risk, students are urged not to upload their work to these sites.

Resources for Your Academic, Physical, & Emotional Well-Being

[Good2Talk 24-hour Ontario Student Helpline](#): 1-866-925-5454 or Text: GOOD2TALKON to 686868

[Academic Advising](#)

[Peer Tutoring](#)

[Centre for Human Rights, Equity, and Inclusion](#)

[Sexual Violence Response and Support](#)

[Centre for Indigenous Students Services](#)

[Student Counselling, Health & Well-being](#)

[Food Access, Funding, & Supports/Resources](#)

[Support Services for International Students](#)

[Keep.meSAFE](#)

[Writing Services](#)

[Learning Commons](#)

[York University Student Services](#)

[Peer Assisted Study Sessions \(PASS\)](#)

[York University Student Well-being Resources](#)

Accessibility

The University provides services for students with accessibility needs (including physical, medical, learning, and psychiatric needs). **If you are in need of these services, please register with accessibility services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice.** Please note that registering with accessibility services and discussing your needs with your instructor or the course coordinator is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

[Student Accessibility Services](#)

[York Accessibility Hub](#)

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an examination pose such a conflict for you, contact the Course Coordinator within the first three weeks of class. To arrange an alternative date or time for an examination scheduled in the formal examination periods, students must complete and submit an accommodation request form at least 3 weeks before the exam period begins.

<https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.pdf>