



## COURSE OUTLINE

### 1. **Course:** CHEM 353, Organic Chemistry II - Winter 2022

Lecture 01 : MWF 08:00 - 08:50 in ENG 60

Instructor	Email	Phone	Office	Hours
Dr. Ian Hunt	irhunt@ucalgary.ca	220-6430	SA 144G	Due to the implications of COVID, please email for an appointment

Lecture 02 : MWF 09:00 - 09:50 in ENG 60

Instructor	Email	Phone	Office	Hours
Dr Jeffrey Van Humbeck	jeffrey.vanhumbec1@ucalgary.ca	220-3039	SB 229A	TBA

#### **Coordinator(s)**

Name	Email	Phone	Office	Hours
Dr. Ian Hunt	irhunt@ucalgary.ca	220-6430	SA 144G	Due to the implications of COVID, please email for an appointment

Dr. Hunt is the **course & laboratory coordinator**.

Additional notes on accommodations can be found in section 4.

To account for any necessary transition to remote learning in the winter 2022 semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

#### **In Person Delivery Details:**

**Lectures** will be presented in-person at the scheduled times.

We recognize the need for flexibility in light of ongoing impacts of COVID-19 in each of our lives. Therefore, in addition to ongoing in-person lectures, we also post pre-recorded, powerpoint-based video content modules. Although initially created for use in this course in W21, these modules are aligned to our current goals and will be made available on a week to week basis to reflect the course progress in the live lectures.

**Laboratories** will start the week of Monday, January 24th 2022 at your scheduled times. Laboratory activities will be temporarily held online while the university remains primarily online (until Feb 19). **In-person laboratories are expected to begin the week of February 28, 2022**. We anticipate there being **7-9** weeks of laboratory sessions.

Laboratory activities are planned as in-person at your scheduled weekly laboratory time in EEEL. The experimental schedule and Chem 353 W22 laboratory manual can be found on the Chem 353 W22 course website. See additional details in Section 3.

#### **Re-Entry Protocol for Labs and Classrooms:**

To limit the spread of COVID-19 on campus, the University of Calgary has implemented safety measures to ensure the campus is a safe and welcoming space for students, faculty and staff. The most current safety information for campus can be found [here](#). **Online Delivery Details:**

Some aspects of this course are being offered in real-time via scheduled meeting times. For those aspects you are required to be online at the same time.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor's permission.

**Tutorials (CAL = Computer Assisted Learning)** will be offered asynchronously online via Moodle, starting

Monday, January 10th 2022. There are no scheduled in-person or Zoom based activities for CAL tutorials.

- During **non-assignment (practice) weeks**, the learning and practice materials can be accessed in a completely asynchronous manner.
- During the **five graded-assignment weeks**, your assignment must be completed anytime between 6AM and 6PM on your scheduled/registered tutorial day.

Full coverage and schedule details for the CAL assignments can be found on the Chem 353 W22 course website.

**Course Site:**

D2L: CHEM 353 ALL-(Winter 2022)-Organic Chemistry II

**Note:** Students must use their U of C account for all course correspondence.

**Equity Diversity & Inclusion:**

The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

The Chemistry EDI Committee acknowledges there are persistent barriers that prevent such accessibility and hinder our progress towards EDI. Our representatives (faculty, postdocs, graduate and undergraduate students) are committed to addressing any concerns and work towards proactive solutions that enact necessary change within the department. To submit anonymous questions, comments or concerns regarding EDI related issues, please reach out to our Associate Head EDI, Belinda Heyne ([bjmheyne@ucalgary.ca](mailto:bjmheyne@ucalgary.ca))

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

**Prerequisite(s):**

Chemistry 351.

**Antirequisite(s):**

Credit for Chemistry 353 and either 355 or 357 will not be allowed.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
Laboratory <sup>1</sup>	20%	Ongoing		
CAL assignments <sup>2</sup>	20%	Ongoing		
Midterm	25%	Mar 10 2022 at 07:00 pm (2 Hours)	in-person	TBD
Registrar Scheduled Final Exam	35%	Will be available when the final exam schedule is released by the Registrar	in person	Will be available when the final exam schedule is released by the Registrar

<sup>1</sup> Each of the experiments may have each of the following (a) pre-laboratory quiz (Moodle), (b) pre-lab summary and (c) "primary graded activity."

**Pre-laboratory quizzes** (as appropriate, using Moodle) are to be completed *before* the start of your scheduled laboratory session each week.

A **pre-laboratory summary** (as appropriate) should be written and submitted to the specific D2L Dropbox *before* the start of your scheduled laboratory session each week. It's required in order for you to attend the laboratory session.

The **primary graded activity** might be an experimental report, or it might be based on your answers to a set of questions (Moodle). The primary graded activities are equally weighted. Laboratory reports will be submitted to a specific D2L laboratory Dropbox and will have due dates that will be specified for each activity. Reports are typically due one week after the activity, i.e. by the start of your next scheduled laboratory period.

<sup>2</sup> There are 5 CAL assignments scheduled for the W22 semester. Please see the Chem 353 W22 course website for the schedule. Students are required to complete their CAL assignments between 06:00-18:00 on the day of their scheduled tutorial. CAL tutorials will start the week of Mon Jan 10th 2022.

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
<b>Minimum % Required</b>	95 %	85 %	80 %	75%	70%	65 %	60 %	55%	50%	45 %	40 %

This course will have a Registrar Scheduled Final exam that will be delivered in-person and on campus. [The Final Examination Schedule](#) will be published by the Registrar's Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 2 hours.

#### Notes

a. Given the essential nature of the hands-on skills taught during Chem 353 laboratory, there is a requirement to complete a minimum of 2/3 of laboratory experiments and achieve a minimum 50% on the laboratory in order to satisfy the prerequisite requirement (i.e. C-) for further Science courses. See *Section 4 for more information on missed experiments*.

b. A minimum 50% **weighted average** on examinations (MT & FIN) **or** 50% on the Final is required in order to satisfy the prerequisite requirement (i.e. C-) for further Science courses.

c. Notes (a) and (b) mean that if a student scores below 50% **in either** the laboratory **or** the examination component, the maximum course letter grade they can obtain in CHEM353 is a D+.

d. Students repeating the course can be exempted from the Laboratory component of the Course if a laboratory grade of 75% or higher were obtained, **and the laboratory was completed fully or mostly in-person in the last 3 years**. However, students are still responsible for the laboratory content as it may be covered in other course work (e.g. examinations). The laboratory grade achieved on the previous attempt will be carried forward. Such students must contact the Undergraduate Science Centre and complete the opt out process **by Monday, January 17th 2022, or immediately (with 24 hrs) after registering in the course (whichever is later)**.

The University of Calgary offers a [flexible grade option](#), Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: <https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade>

#### 4. Missed Components Of Term Work:

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, one possible arrangement is that the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course. This option is at the discretion of the coordinator and may not be a viable option based on the design of this course.

#### Notes

- a. Deferred examinations will **only** be provided for the Final Examination and students must apply through their student centre. Requests and decisions for deferred final exams are not managed at the course level.
- b. Absences from any graded component (midterm, laboratory, CAL assignment) must be reported to the course coordinator (Dr. Hunt) within 48 hours (email is fine). Given the current situation, no official documentation beyond an email stating the reason for the absence is required. If an absence is not reported it will result in a grade of zero for the missed component.
- c. In addition to posting course content video modules in D2L, the following accommodations will be made to minimize the impact of health and safety related disruptions for students.
  - o **Midterm examination.** Students who have an excused absence from the midterm exam will be assigned a midterm grade equal to the grade obtained on the final examination.
  - o **Tutorial (CAL) assignments.** The highest 4 out of 5 CAL assignments will count towards your CAL grade. If you have an **excused** absence, this will be the one to be dropped, otherwise the lowest CAL assignment grade will automatically be dropped. Any further excused CAL assignment absences will be given the same grade as obtained on the final examination.
  - o **Laboratory.** Similarly, students who complete all laboratory assignments will be able to drop their lowest laboratory experiment grade. If you have an **excused** absence, this will be the one to be dropped, otherwise the lowest experiment grade will automatically be dropped. Any further excused absences from the laboratory will be given the same experiment grade as that obtained on the final examination provided that the student attends and submits **no fewer than 2/3 of the experiments.**
    - Students who experience extenuating circumstances preventing them from attending at least 2/3 of the experiments may apply to complete the laboratory course component after the end of the semester, using the Deferral of Term Work process (see also, Calendar G.7).

#### 5. Scheduled Out-of-Class Activities:

The following out of class activities are scheduled for this course.

Activity	Location	Date and Time	Duration
Midterm Exam	TBA	Thursday, March 10, 2022 at 7:00 pm	120 Minutes

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

We remind you that it is the course with the out-of-class activity that is **required** to provide you with alternate arrangements if there is a conflict with a scheduled Chem 353 activity.

## 6. Course Materials:

**Textbook:** No textbook is required. We provide an Organic Chemistry e-text via the Chem 353 W22 course website.

If you wish to purchase a textbook because it suits your individual learning style, "Organic Chemistry - Mechanistic Patterns" by Ogilvie *et al.*, (published by Nelson) or "Organic Chemistry" by Jones (published by Norton) are good choices for our course. Otherwise, consult your instructor.

**Molecular models kits are very strongly recommended.**

**Chemistry 353 Laboratory Manual** (free, online via the course website).

A self-duplicating **Laboratory Notebook** (required, available from the Bookstore)

**Laboratory safety coat** (required, available from the Bookstore)

**Laboratory safety glasses** (required, available from the Bookstore)

**Top Hat account** (optional; available from Top Hat, see course website for more details, free to U of C students)

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

## 7. Examination Policy:

All examinations are common to all sections, *i.e.* students in L01 and L02 write the same examinations. All the instructors are involved in determining content coverage, creating, selecting and reviewing examination questions, creating and reviewing grading rubrics and grading of student answers as well as reviewing the grades once collated.

"Exam conditions" : All in-person examinations, assignments, quizzes etc. are closed book. Model kits and non-programmable calculators are allowed, a periodic table and spectroscopy data tables will be provided if required. No other aids including any form of "cheat" or "data" materials are allowed. Wireless devices and other electronic devices are not allowed.

Any student with academic accommodations must be registered with Student Accessibility Services (see Section 12(f) below), and have reviewed their accommodations (as described on the SAS documents) with the course coordinator (Dr. Hunt) ideally within the first 15 days of the semester or at least 5 business days before any scheduled activity for which accommodations are required. All SAS accommodations that impact the laboratory component of the course must be discussed with the laboratory coordinator.

Students should also read the Calendar, [Section G](#), on Examinations.

## 8. Approved Mandatory And Optional Course Supplemental Fees:

**Laboratory Breakage Fee and Late Check-out Fee :** The Department of Chemistry has a laboratory glassware breakage fee and a late check-out fee. At the start of the course, each student is assigned a drawer and checks in to establish that they have a complete set of usable equipment. By signing for check-in, a student agrees that they are now responsible for the equipment until check-out. At the time the student checks out, any equipment that is missing, unusable or has been replaced during the semester will be charged to the student. All students, even those who withdraw early from the course must check out of the laboratory before the last day of lectures (April 12, 2022). Any student who fails to check out before the last day of lectures for the term will be assessed a charge of \$30.00. If this fee is not paid by the posted deadline, university services (registration, transcripts, etc.) may be withheld.

## 9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

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## 10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

## 11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar

b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

### a. Term work

i. **MT & CAL** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within ten business days of either being notified about the mark, or of the item's return to the class.

ii. **Laboratory.** See section 6 of the Chem 353 W22 student laboratory manual. The request should be made in the first instance to your laboratory TA and only after that (if required) to the laboratory coordinator. If you need to appeal to the laboratory coordinator, then you need to provide a detailed rationale that outlines where and for what reason an error is suspected (*i.e.* clearly stating the details of your concern) and your University of Calgary email contact information (all to be done within the 10 day business period). The laboratory coordinator will then review the request and provide a response to the University of Calgary email address. No such appeal will be considered after the 10 business days have elapsed.

If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections I.1 and I.2 of the University Calendar

b. **Final Exam:** The student shall submit the request to Enrolment Services. See Section I.3 of the University Calendar.

## 12. Other Important Information For Students:

a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).

b. **SU Wellness Services:** For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).

c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support

and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at 403-220-2208. The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Sexual-and-Gender-Based-Violence-Policy.pdf>)

- d. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)  
Student Academic Misconduct [Policy](#) and [Procedure](#)  
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

- e. **Academic Accommodation Policy:**

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>.

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Academic Accommodation Form](#) and sending it to Dr. Yuen-Ying Carpenter by email [yyscarpe@ucalgary.ca](mailto:yyscarpe@ucalgary.ca) preferably 10 business days before the due date of an assessment or scheduled absence.

- f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- g. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). [Student Ombudsman](#), Email: [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca).
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

**Laboratory Safety Course:** All undergraduate students taking chemistry laboratories are required to complete an introductory course (approx. 50 minutes) on laboratory safety. This course is presented in an online format. The Safety Course must be completed before the first laboratory experiment. Students who do not complete the safety lessons will subsequently be denied admission to the laboratories. While it will not count directly to the final grade, the material is considered to be part of the course and is therefore appropriate for inclusion into

laboratory prelabs and exams. Students who have previously completed the Chemistry Safety Course at the University of Calgary in the past five years are NOT required to repeat it.

**Course Outcomes:**

- Analyze and use the structural and electronic characteristics of the organic species to predict or rationalise properties and reactivity.
- Draw reasonable reaction mechanisms with appropriate curved arrows to account for the step by step bonding changes in organic reactions.
- Design and evaluate feasible syntheses of small organic molecules from simple starting materials.
- Classify molecules as being aromatic, non-aromatic or anti-aromatic to recognise and describe the implications this has on their stability, properties and reactivity.
- Analyse chemical information to determine a reasonable solution to a problem involving the reactions and / or spectroscopic data of organic species.
- Use experimental procedures to safely set-up, perform and clean up reactions that apply standard introductory organic techniques and report the outcomes.

Electronically Approved - Jan 20 2022 15:54

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**Department Approval**

Electronically Approved - Jan 20 2022 17:15

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**Associate Dean's Approval**