



## COURSE OUTLINE

### 1. **Course:** CHEM 351, Organic Chemistry I - Winter 2022

Lecture 01 : MWF 10:00 - 10:50 in CHC 105

Instructor	Email	Phone	Office	Hours
Dr. Erin Sullivan	ersulliv@ucalgary.ca	403 220-6913	SA 144D	please see D2L

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:**

All lectures and laboratories will be running synchronously in Winter 2022.

Laboratories will start the week of January 24th, 2022 *online* and then will tentatively move to in-person in following weeks if the university community returns to in-person learning. Laboratories are 2 hours and 50 mins and will run weekly, check your student center for your registered laboratory time and location.

An out-of-class in-person midterm is scheduled for Tuesday, March 8th, 2022 from 7-9 pm (Location(s) TBA).

An in-person Final exam will be scheduled by the registrar between April 19th-29th, 2022.

#### **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.

An optional closed book synchronous online "Mock Midterm" is scheduled for Tuesday, February 15th, 2022 from 7-8:30 pm.

**Tutorials** (CAL, Computer Assisted Learning) will be offered asynchronously online via [Moodle](#), starting Monday, January 17th, 2022. There are no scheduled Zoom-based activities for CAL tutorials. Preparing for a tutorial assignment can happen at any time before your assigned time.

Tutorials have alternating preparation and assignment weeks.

During **preparation weeks**, students can choose when they are working and preparing for an assignment.

During an **assignment week**, students are required to complete their assignment on the day of their tutorial between 6 am and 6 pm, but ideally during their scheduled tutorial time to reduce strain on the system.

Full coverage details and schedules for the CAL assignments can be found on the course website.

#### **Course Site:**

We will use **D2L** for communication and grades, however, we will also have **course website** where further course information, our online laboratory manual, and our online textbook reside.

**D2L:** CHEM 351 L01 (Winter 2022) - Organic Chemistry I

**Course Website:** <https://www.chem.ucalgary.ca/courses/350/index351-w22.html>

**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 201 or 211; and 203 or 213.

**Antirequisite(s):**

Credit for Chemistry 351 and 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
Tutorial CAL Assignments <sup>1</sup>	20%	Ongoing		
Laboratory <sup>2</sup>	20%	Ongoing		
Weekly Reflections <sup>3</sup>	4%	Ongoing		
Assignment/Midterm Reflections <sup>4</sup>	6%	Ongoing		
Optional Online Mock Midterm <sup>5</sup>	0%	Feb 15 2022 at 07:00 pm (90 Minutes)	online	Online
Midterm <sup>6</sup>	20%	Mar 08 2022 at 07:00 pm (2 Hours)	in-person	TBD
Registrar Scheduled Final Exam	30%	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> Assignment dates are posted on the course website (50-minute timed assignment, 33 min with 17 min buffer time, asynchronous but due on your assigned tutorial day). Only your best 4 out of 5 assignments will count towards your overall Tutorial grade (each worth 5%). See Section 4 note (c) regarding for more details on missed tutorial assignments.

<sup>2</sup> Weekly in person. Only your best 7 out of 8 laboratories will count towards your overall laboratory grade. See Section 4 note (c) for more details on missed laboratories.

<sup>3</sup> A couple of minutes of class time each week will be put aside to reflect on how the previous week went. These will be done through TopHat. Each one will be worth 0.5% and a Pass credit will be given for thoughtful and complete answers. To gain the 4%, one must achieve a Pass on a minimum of two-thirds of these reflections.

<sup>4</sup> After every tutorial and midterm/mock midterm, there will be an option to complete a reflection. Each will be worth 2% and will have a corresponding rubric. The scoring of your top three will count towards your overall grade. This gives you a possible 7 chances (assuming no disruption to our schedule) to score perfectly on three. Completing a reflection for a course component you do not attend will not be accepted.

<sup>5</sup> This Optional midterm can give you an idea of where you stand before the in-person midterm on March 8th, 2022. Your mock midterm will only count towards your overall grade if this change benefits your grade. If your mock midterm score is higher than your March midterm score, your March midterm will automatically be reduced from 20% to 15% and the remaining 5% will be transferred to your mock midterm instead. This exam has a 60 minute writing time with 30 minute buffer time for a total of 90 minutes. Writing time will be adjusted for students with accommodations through the SAS.

<sup>6</sup> See footnote 5 above for an explanation of how the midterm percentage can vary.

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.

a. A minimum of 50% on the laboratory **is required**, along with the completion of at least 5 out of the 8 experiments, in order to satisfy the prerequisite requirement (i.e. C-) for further science courses.

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

c. Note (a) and (b) mean that if a student scores below 50% **in either** the laboratory **or** the examination component, **or** completes fewer than 5 laboratories, the maximum course letter grade they can obtain in CHEM 351 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 **fully or mostly in-person** in the last 3 years. Students choosing to exempt from the lab should be aware that,

- there may be differences between the current labs and those performed in your previous semester;

- the material covered in labs may be integrated into non-lab-based course assessments (e.g. tutorial and examinations); and,
- the lab grade achieved on the previous attempt will be carried forward.

Students will still be evaluated on all other course components (tutorial, examinations, weekly, and assignment reflections).

**Prior to applying for an exemption**, students are encouraged to connect with their course instructor or coordinator to better understand the risks and benefits in their specific course. Instructors can tell you what access you will have (or not have) to lab materials as an exempt student, and how the lab materials may be integrated.

Such eligible students must contact the Undergraduate Science Centre and complete the opt out process by **Monday, January 17th, 2022, or immediately after registering for the course (whichever is later)**.

Note: Online labs completed in the 2020-2021 academic year are not eligible for use as a lab exemption in the in-person Winter 2022 term.

The University of Calgary offers a [flexible grade option](https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade), 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. Course logistics will not allow for makeup midterms.

b. Absences from any graded component (midterm, laboratory, CAL assignments) must be reported within 48 hours (see information about how to report on D2L). The time limit will be ignored in the case of emergency circumstances. Given the current situation, no official documentation beyond following the reporting instructions on D2L is required - but, if an absence is not reported it will result in a grade of zero for the missed component.

c. The following accommodations for missed course components will be made to minimize the impact of health and safety-related disruptions for students.

- **Midterm Examination.**
  - **Online Mock Midterm** Students can opt to not do the optional mock midterm and do not need to request an excused absence.
  - **In-Person Midterm** Students who have excused absence for the in-person midterm exam will have their midterm grade assigned as being equal to the grade obtained on the final exam. If a student with an excused absence for the midterm performed well enough on the mock midterm, the mock midterm can still automatically account for 5% of the exam percent grade or not count, whichever results in the higher grade.
- **Tutorial.** 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, however, if you do all five the lowest will be dropped. Any further excused tutorial absences will be given the same grade as obtained on the final exam.
- **Laboratory.** Similarly, the highest 7 out of 8 laboratories will count towards your laboratory grade. If you have an excused absence this will be the one dropped, however, if you do all 8 laboratories, your lowest overall laboratory grade will be dropped.
- To attend a makeup laboratory students must complete the online makeup request form (link on website and D2L), within 48 hours of their missed laboratory component. Depending on availability in a laboratory room that works with a student's schedule the laboratory will be made up. In the rare extenuating circumstances that the laboratory cannot be made up, an excused absence will be given.

- In the rare case that a student requires more than one excused laboratory, the grade for that further excused laboratories will be given the same grade as obtained on the final exam, provided that the student attends and submits no fewer than 5 labs.
- Given the essential nature of the hands-on skills taught during CHEM 351 lab, there is a minimum of 5 laboratory experiments that must be completed to receive credit for the course. Students whose experience extenuating circumstances preventing them from attending at least 5 laboratories must reach out to the course coordinator as soon as this might be a possibility.

#### 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 1 (Optional)	online	Tuesday, February 15, 2022 at 7:00 pm	1.5 Hours
Midterm Exam 2	On Campus, Room TBA	Tuesday, March 8, 2022 at 7:00 pm	2 Hours

**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.

#### 6. Course Materials:

**Textbook:** No textbook is required. We provide an Organic Chemistry e-text via the course website. If you wish to purchase a textbook because it suits your individual learning please consult your instructor for suggestions.

**Molecular models kits are very strongly recommended.** These can be used during all examinations in the course (CAL assignments and exams).

**Chemistry 351 Laboratory Manual** (free, online via the course website).

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

#### **Required Materials (available from bookstore):**

- A self-duplicating Laboratory Notebook
- Laboratory safety coat
- Laboratory safety glasses

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:

**"Exam conditions":** All in-person and online examinations, assignments, quizzes etc. are closed book. Model kits and nonprogrammable 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(e) below), and have reviewed their accommodations (as described on the SAS documents) with the course coordinator within the first 15 days of the semester or at least 7 days before any scheduled activity for which accommodations are required.

For any synchronous online assessment, students with scheduling issues (e.g. different time zones, caregiving responsibilities, ability to secure an appropriate test-taking environment can request accommodations by emailing the instructor at least 10 days prior to the activity. Such requests will be reviewed on a case-by-case basis.

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

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

**Laboratory Breakage Fees and Locker Check-out:** The Department of Chemistry has a laboratory glassware breakage fee. At the start of the course, each student is assigned a locker and checks-in to establish that they have a complete set of usable glassware. By signing for check-in, a student agrees that they are now responsible for the glassware until check 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.

## 10. Human Studies Statement:

If you agree, your course work may be used for research purposes. Your responses will remain anonymous and confidential. Grouped data (no individual responses) may be used in academic presentations and publications. Participation in such research is voluntary and will not influence grades in this course. Students' signed consent forms will be withheld from instructors until after final grades are submitted. More information will be provided at the time student participation is requested.

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.

## 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](tel: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:

- Recognize and employ the conventions of naming, structure drawing, and curved arrow pushing to communicate about organic compounds
- Draw reaction mechanisms with appropriate curved arrows to account for how bonds are made and broken in organic reactions
- Analyze the structural features of starting materials, reaction intermediates, and products to predict or rationalize their physical properties or reaction behaviour
- Identify and interpret spectral data to deduce the structure of simple organic molecules
- Understand laboratory experimental data and explain observations.
- Propose a short (ca. 1-4 step), feasible synthesis for the formation of a specific organic product using a limited number of possible reaction types: acid/base, radical substitution, nucleophilic substitution, or elimination reactions.

Electronically Approved - Jan 10 2022 16:27

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### Department Approval

Electronically Approved - Jan 10 2022 20:22

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### Associate Dean's Approval