



COURSE OUTLINE

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

Coordinator(s)

Name	Email	Phone	Office	Hours
Dr. Erin Sullivan	ersulliv@ucalgary.ca	403 220-6913	SA 144D	please see D2L
Dr. Ian Hunt	irhunt@ucalgary.ca	220-6430	SA 144G	Open door, drop in OR make an appointment

Section(s)

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	Open door, drop in OR make an appointment

Lecture 02 : MWF 09:00 - 09:50 in ENC 70

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

Lecture 03 : MWF 10:00 - 10:50 in ENG 60

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

This course outline only pertains to the plan for **in-person delivery** of lecture, tutorial, and laboratory contents. If the Faculty, University, and/or Province mandates a return to online-only delivery, a new course outline will be developed.

Dr. Sullivan is the **course coordinator**; Dr. Hunt is the **laboratory coordinator**.

Additional notes on accommodations can be found in section 4.

To account for any necessary transition to remote learning for the current 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.

A voice-captured animation of the lectures will be accessible to students in all lecture sections. Prof. Van Humbeck will be making these available to all lecture sections.

Laboratories will start in-person on Monday, September 12th, 2022. Laboratory activities are in-person at your registered weekly laboratory time in EEEL. The experimental schedule (plan : 9 wks, 1 orientation and 8 experiments) and laboratory manual can be found on the course website. Each of the laboratory activities will each have a "primary graded activity"; this might be a 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 via a D2L Dropbox and will have due dates that will be specified for each activity.

Tutorials (CAL, Computer Assisted Learning) will occur in person starting Tuesday, September 6th, 2022 during your scheduled tutorial time, in the computer lab SA 204. Tutorials will be broken into 5 modules and each module is based on a set of course topics outlined on the course website and each module is worth 5%. Each module will build on previous modules and therefore these modules are cumulative. Modules 1-4 consist of an activity week and assignment week. Each activity week will have group work followed by a 10-minute 1% individual quiz. Each assignment week will have a 50-minute 4% assignment under exam conditions. Due to the layout of the Fall semester, we will not have time for an activity week before assignment 5. Therefore we will have 4 activity weeks and 5 assignment weeks. Please see the course website for this detailed schedule along with what is covered in each module.

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](#).

Course Site:

In all communications, 'D2L' refers to the D2L page, whereas the 'Course Website' refers to the chem.ucalgary page given below:

D2L: CHEM 351 - L01 - L03 (Fall 2022) - Organic Chemistry I

COURSE WEBSITE: <https://www.chem.ucalgary.ca/courses/350/index351-F22.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)

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
Laboratory ¹	20%	Ongoing		
Tutorial CAL Activities and Assignments ²	20%	Ongoing		
Mock Midterm Exam ³	0%	Ongoing		
Midterm	25%	Nov 02 2022 at 07:00 pm (2 Hours)	in-person	TBA
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

¹ Each of the experiments may have each of the following: (a) Pre-laboratory quizzes (online in Moodle) due before the start of your scheduled laboratory. (b) Pre-laboratory summary should be written and the pdf submitted to the specific D2L Dropbox before the start of your scheduled laboratory. Required in order for you to attend the laboratory session. (c) Laboratory notebook : a duplicate copy of the notes taken during experiments need to be handed to the TA before your leave the laboratory. (d) Primary graded activity (e.g. experimental report, or answers to a set of questions (Moodle) etc). Equally weighted. Report pdf to be submitted to the specific D2L Dropbox with due dates that will be specified for each activity (typically one week after the activity, i.e. by the start of your next scheduled laboratory period).

² Tutorials will run in person during your assigned tutorial time in SA 204 starting Tuesday, September 6th, 2022. Tutorials will be split into 5 Modules, each worth 5% and covering a set of topics. Modules 1-4 will be two weeks long and consist of a group activity week (with an individual 10-min 1% quiz) and an assignment week (50-min individual 4% assignment). Due to the schedule of the Fall semester, module 5 can only be one week long and has an assignment worth 5%. To add flexibility we will count the best 4 out of 5 tutorial modules towards your overall grade.

³ During your scheduled tutorial time the week of Oct 17-21, 2022 you can write a "Mock Midterm" examination in SA 204 under exam conditions. The purpose of this mock exam is to prepare you for the upcoming midterm. However, if you perform better on the mock exam than you do on the midterm, this mock exam can count for 5% of your overall grade in the midterm portion of the course. This would mean that the mock would be worth 5% and the midterm worth 20% of your overall grade. If you perform better on the midterm, the mock exam is worth 0% while your midterm is worth 25%. If you obtain an excused absence for your midterm, the mock midterm can still be applied to your excused absence midterm grade percentage.

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
Minimum % Required	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. A minimum 50% on the laboratory **is required** in order to satisfy the prerequisite requirement (i.e. C-) for further Science courses.

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 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 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, September 12th, or immediately 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-advicing/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.

b. Absences from the midterm must be reported to the course coordinator (Dr. Erin Sullivan) within 48 hours via email (ersulliv@ucalgary.ca). The time limit will be ignored in the case of emergency circumstances. Given the current situation, no official documentation beyond an email is required - but, if an absence is not reported it will result in a grade of zero for the missed component.

c. The course website outlines the procedures and more details on reporting absences/scheduling makeups for laboratories and tutorials.

- Any questions regarding laboratory makeups beyond the information on the website should be directed to the **laboratory coordinator (Dr. Ian Hunt, irhunt@ucalgary.ca)**.
- Any questions regarding tutorial makeups beyond the information on the website should be directed to the **tutorial coordinator (Dr. Erin Sullivan ersulliv@ucalgary.ca)**.

Again all absences must be reported within 48 hours (university regulations), however, the earlier the better to allow for time to possibly reschedule and make up the laboratory/tutorial depending on the circumstances. On some occasions, it might not be possible to schedule a makeup and an excused absence may be granted. Any excused course component will receive the same grade percentage as a student's grade on the final examination.

d. In addition to posting lecture content online, the following accommodations will be made to minimize the impact of health and safety-related disruptions for students.

- **Midterm Examination.** Students who have excused absences from the midterm exam will have their midterm grade assigned as being equal to the grade obtained on the final exam.
- **Tutorial.** Students who complete all 5 modules will be able to drop their lowest module grade. **All excused** tutorial absences will be given the same grade as obtained on the final exam.
- For each of modules 1-4, the activity quiz is worth 1% and each assignment is worth 4%.
- If you do better on the assignment, your grade for that module will automatically shift to 5% assignment, and 0% activity; making activity weeks less stressful.
- If you do not do an activity the weight for the activity moves to the corresponding assignment.
- **Laboratory.** Similarly, students who complete all laboratory experiments will be able to drop their lowest laboratory grade (best 7 out of 8). An **excused** laboratory absence will be given the same grade as obtained on the final exam, provided that the student attends and submits **more than 4 labs (i.e. 5 out of the 8 labs)**. When given an excused laboratory absence students are excused from all components of that specific laboratory experiment.
 - Given the essential nature of the hands-on skills taught during the CHEM 351 laboratory, one must complete more than half of the laboratory experiments that must be completed to receive credit for the course.
 - Students who may not be able to meet this requirement may apply to complete this course component after the end of term, 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	On-Campus, room to be announced	Wednesday, November 2, 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 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 351 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, L02 and L03 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(e) below), and have reviewed their accommodations (as described on the SAS documents) with the course coordinator (Dr. Sullivan) ideally within the first 15 days of the semester or at least 7 days before any scheduled activity for which accommodations are required. All SAS accommodations that impact the laboratory component of the course must also be recorded with the lab coordinator (Dr. Hunt).

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

8. Approved Mandatory And Optional Course Supplemental Fees:

There are no mandatory or optional course supplemental fees for this course.

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.

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 351 F22 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 their [website](#) or call [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) or phone at [403-220-2208](#). The complete University of Calgary policy on sexual

violence can be viewed [here](#).

- 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](#)
[Faculty of Science Academic Misconduct Process](#)
[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 Associate Head, Undergraduate by email ahugchem@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 (FOIP). 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:** [SU contact](#), Email SU Science Rep: sciencerep1@su.ucalgary.ca, [Student Ombudsman](#)
- 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.

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 - Sep 02 2022 00:55

Department Approval

Electronically Approved - Sep 02 2022 07:58

Associate Dean's Approval