

Syllabus Chem 260 Synthetic Chemistry Laboratory (Fall 2025)

Course Structure

Chemistry 260 is a lab course that runs for one term and is worth 1.5 credits. Students attend the laboratory two days per week; one four-hour period and one two-hour period. The four-hour periods are dedicated to synthesis and the two-hour periods are primarily analysis. This 12-week course incorporates topics from organic chemistry, inorganic chemistry and spectroscopy.

Prerequisites

Completion of Introduction to Organic Chemistry (231) and Chemistry 101 & 102 are mandatory prerequisites for this course. Students must ensure that they have the proper prerequisites; they may be de-registered without warning at any time if found not to have the required courses.

Manuals and Equipment

Access to a current laboratory manual is required. There are no assigned textbooks for the course, but your second-year organic text will always be valuable.

Lab manuals are available at the bookstore and electronically through the course website. Printed copies of the lab manuals will also be available in the laboratory in case you forgot yours at home; these must stay in the lab. If a change needs to be made to a published procedure, updates will be communicated by email.

A notebook with fixed pages is mandatory, though it need not be exclusive to this course. Safety Glasses and Lab Coats must be worn for all lab work; these are available from the UVic bookstore. Prescription glasses are not adequate as safety glasses. If you wear prescription glasses, you will need the type of safety eyewear that fits over your prescription glasses.

Web Site

Information about the lab, marks, reference links, due dates, report templates, schedules, contact information, etc. are found on the website at <https://web.uvic.ca/~berryde/chem260/index.html>. Only a small fraction of this is duplicated on Brightspace. Make sure you can access the protected portions of the website with your netlink ID and password - contact Dave Berry (berryde@uvic.ca) if you are having trouble.

Course Goals

To learn new techniques as applied to problems in the synthetic chemistry laboratory. Many of the techniques will be new and build on the basic lab skills acquired in first year. These include reflux, distillation, recrystallization, inert atmosphere reactions, chromatography, rotary evaporation, and how to work safely in a fumehood. These techniques build a foundation for the upper-level laboratory synthesis courses, Chem 362 & 363.

To understand the relationship between a compound's structure, physical properties, and the spectra observed for the compound. The physical properties of a compound can indicate if the correct product was isolated or not, as well as comment on the purity. Spectroscopic analysis (primarily IR & NMR) is paramount in determining the structure of small molecules. A variety of classes of organic and inorganic compounds are synthesized in the laboratory, and their structures can be understood in terms of their spectra. Additional techniques of analysis will include magnetic susceptibility, polarimetry, UV-Vis spectroscopy, gas chromatography, and mass spectrometry.

To gain self-confidence in a laboratory setting. Students are responsible for planning their time in the laboratory in order to complete the work on schedule. Preparation is key.

Laboratory Times & Attendance

Chemistry 260 begins on *Thursday Sept 4th* for Fall 2025 and ends *Thursday Nov 27th*.

All students are expected to attend their introductory period to complete the mandatory safety session, and each class afterwards. You are restricted to your own section unless alternative arrangements (for medical or compassionate reasons) are made in advance with Kelli Fawkes (fawkesk@uvic.ca). Late arrivals to the lab may not be permitted to perform the experiment and will receive a score of zero. Missing the safety introduction at the beginning of the period renders you ineligible to perform the experiment. Contact Kelli Fawkes in advance of any absence.

Due Dates

Most four-hour lab periods have an associated report due one week later. This report may incorporate experimental results from the associated two-hour session that follows later in the week. Please submit your completed report at the start of your next 4 h lab session unless a different deadline has been announced in advance. No reports will be accepted for any reason after the last day of labs, Thursday November 27th.

Some two-hour sessions are self-contained with workbooks completed during the period. There are several in-lab assignments which are due before the end of the period and/or pre-lab assignments that must be submitted before you begin. The in-lab work is generally completed in a peer-learning environment with discussion encouraged and TA support readily available.

Reports that are late up to one week past the deadline will be given a 25% penalty of the maximum mark. After that, a mark of zero will be recorded. Late reports will not be accepted after the last day of labs in the term.

Evaluation

The primary method of evaluation is the laboratory report. The report shows the understanding of the material, and the ability to communicate this understanding. Pre-lab assignments, in-lab assignments, and problem booklets will also contribute to the total. The total marks for each component will be posted during the term; no single component is worth more than 15% of the final mark. The total marks per term is about ~400 depending on the number of weeks in the term.

Assignments, results and reports (minimum 90% of total mark).

Instructors assessments of professional skills (approx 5-10% of total lab mark).

There are no midterms, lab exam or final exam.

Marking guides are posted on the website. Criteria used by the lab instructors in making their evaluation of the professional skills are posted on the website. Lab reports and tutorial booklets are typically marked and returned to the students in one week. Requests for review of an assigned mark must be sent to the Course Coordinator within two weeks of the marked work being returned or by the last day of labs in the term, whichever is first. The grade determined by means of a review will be recorded as the final grade for the lab report or tutorial, regardless of whether it is the same as, higher than, or lower than the original grade.

A passing grade of 50% must be obtained in the course and a minimum of 70% of the assigned work must be completed and graded to earn 1.5 credits. Lab work may not be deferred beyond the week(s) in which it is originally scheduled.

Marks will be calculated as a percentage to 2 decimal points. Once all the marks are available for the class, they will be evaluated, and the marks will be rounded to a whole number.

Weekly Emails

Emails will be sent regularly from the course coordinator, usually at the end of the week. These will outline the details related to the upcoming experiment & tutorial assigned to each section, location, PPE requirements, and drop-in support hours. Changes to the procedures published in the manual will also be communicated here and will override those published in the manual.

You must read these carefully to be prepared for each week of the course.

Course Support & Drop-in Help

There will be drop-in help available for each week of the course with a lab report as homework. This is an excellent resource that will be staffed with instructors able to answer your questions. It is also a good space to plan to work with others as there is plenty of space for plugging in laptops and working at your own pace. Most often the drop-in hours will be held in Ell 347 or 349, but check the weekly emails for details. Although this is a lab space, you are not required to wear PPE during drop-in hours and we will ensure no chemicals are being used in the room at that time. You may not consume any food or drink in the lab as chemical storage is still an issue.

If populations are low or the workload is light (ie: weeks 1 & 12), drop-in hours will not be offered and you are encouraged to make appointments with the Senior Lab Instructors.

If you have questions on the weekend, please email the Senior Lab Instructor (SLI) for the topic. Each experiment and tutorial identifies the SLI specialist on the first page of instructions in the manual; questions sent to the course coordinator will be forwarded to the appropriate SLI. Replies may be copied to your TA so they are informed about the content of the conversation for grading purposes, but they are not expected to answer direct email questions from students. Copying TAs on email replies is meant to clarify marking questions from the TAs related to the answers from the SLIs, and give them a chance to join the conversation if they wish.

Instructors

There is a large team of Senior Lab Instructors (SLI) responsible for the content of the experiments and lab instructors (TAs) who teach the individual sections. Content is roughly divided into organic (odd-numbered experiments), inorganic (even-numbered experiments), and spectroscopy which is applied in almost every experimental analysis.

Please contact Kelli for all absences and academic accommodation requests. Chemistry questions can go directly to the SLI responsible for the topic. Please do not email your TAs for help outside of class hours - your best resource is the drop-in centre or the SLI.

Kelli Fawkes, fawkesk@uvic.ca office Ell 334e, 250-472-5212 Spectroscopy SLI & Course Coordinator (*listed as Primary Instructor on your registration*)

Dave Berry, berryde@uvic.ca office Ell 334c, 250-721-7170, Inorganic SLI

Michelle Mills, mbmills@uvic.ca office Ell 334a, 250-721-7172, Organic SLI

Evan Wills, evanwills@uvic.ca office Ell 334b, 250-472-5142, Scientific Assistant

Important Dates

Please refer to the University Calendar for add/drop/tuition deadlines and holidays.

<https://www.uvic.ca/calendar/dates/index.php>

Territory Acknowledgment

This course takes place in several laboratories on the third floor of the Elliott building at the University of Victoria. We acknowledge and respect the Lkwungen peoples on whose traditional territory the campus stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

Policy on Academic Integrity

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. It is expected that students, faculty members and staff at the University of Victoria, as members of an intellectual community, will adhere to these ethical values in all activities related to learning, teaching, research and service. Any action that contravenes this standard, including misrepresentation, falsification or deception, undermines the intention and worth of scholarly work and violates the fundamental academic rights of members of our community. This policy is designed to ensure that the university's standards are upheld in a fair and transparent fashion. Details are in the academic calendar. Violations of academic integrity (e.g. cheating, plagiarism, falsifying data, and the unauthorized use of an editor or generative AI to write your lab reports) are considered serious and may result in significant penalties.

Details on the Tri-Faculties Standards for Professional Behaviour are given in the Student Code of Conduct at:

<https://www.uvic.ca/services/advising/advice-support/academic-units/student-code-of-conduct/index.php>

Equity and Human Rights

The University of Victoria is committed to fostering a safe, respectful, and supportive environment for learning, working, and living. Our policies strictly prohibit discrimination, harassment, and sexualized violence, as we recognize that these behaviours can hinder student success.

The Equity and Human Rights Office (EQHR) is a campus-wide resource for all UVic community members. EQHR provides education, information, assistance, and advice to help build and maintain an inclusive and respectful campus. EQHR resources and contact information can be found at www.uvic.ca/equity.

The Department of Chemistry expects everyone participating in university activities in the department to model respectful behaviour and abide by applicable University policies. Additionally, the Department of Chemistry has an Equity, Diversity, and Inclusion (Chem EDI) committee that provides education, guidance, and resources to help create a more inclusive environment within our department. If you have any comments or concerns, you can contact Chem EDI at ChemEDI@uvic.ca. You can also reach out to any of the committee members listed on the Chemistry website under the 'Equity & Diversity' section here: www.uvic.ca/science/chemistry/about/equity.