Department of Chemistry

Chem 1027A Course Outline

Course and Instructor Information

Chem 1027A (Fall 2025)
Chemistry: Everywhere and Everything

Prerequisites and Antirequisites

Chem 1027A does not have any prerequisites. The course is intended for students who have not taken Grade 11 or 12 Chemistry, and who are not registered in the Faculty of Science. Please note that Chem 1027A is not equivalent to Grade 12 Chemistry and cannot be used to fulfill prerequisite requirements for courses that require Grade 12 Chemistry.

Antirequisites: Chemistry 1301A/B, 1302A/B.

Section	Time	Room	Instructor	Office	Email
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

The instructor is available immediately after lecture to answer questions, time permitting. Office hours will be available by appointment.

Email Policy

- Use your **@uwo.ca** email address and specify **1027A** in the subject line
- In all emails you must **include your Western ID number**
- *Questions regarding lecture material and course content should be posted on OWL Discussions*
- Questions that can be answered from the course outline will not be replied to
- Effort will be made to return emails within 3-5 business days. Responses may be delayed depending on the time of the semester (i.e. during the start of the semester, near the midterm, and towards the end of the semester).

Course Website

All course materials, news and course updates will be posted on Western's learning management system, OWL Brightspace (https://westernu.brightspace.com). This is the primary method by which information will be disseminated to all students in the class, so you are responsible for checking OWL on a frequent basis. OWL will be used for the following:

- Course Outline
- Announcements
- Lecture Notes
- Accessing Grades
- Downloading and submitting homework

If you need technical assistance with OWL, seek support on the OWL Help page. Alternatively, contact the Western Technology Services Helpdesk by phone at 519-661-3800.

Course Materials

There is no required textbook for the course. In addition to the lecture notes, any required resource will be posted to the OWL site for your reference.

A simple calculator may be used for midterms and final exam, but no smart phones.

Crib Sheet

A crib sheet is allowed on the midterms. Rules for the crib sheet:

- Must be entirely *handwritten*, no computerized graphics or text. You may write on a tablet and make a print copy.
- For each midterm and the final exam one 8.5 x 11 inch piece of paper is allowed. That is one sheet of paper in total.

Use of Generative AI

You may use use generative artificial intelligence (AI) tools/software/apps in completing your assignments (because it's almost unavoidable), but the final result submitted should be your own.

Class Topics

The lecture component will introduce students to the fundamentals of chemistry and explore various relevant topics to make connections to the chemical world around us. The tentative topics below will be explored and may change slightly based on timing of material covered each week.

1 The Chemical Perspective
Atomic scale, measurements, scientific notation, SI-units, unit conversions, scientific review

2 Matter: Atoms and Molecules
The periodic table, groups, elements, atomic structure, isotopes, mass spectroscopy, hydrocarbons, line drawings, allotropes, supercritical fluids

3 Matter and Energy
Changes in physical and chemical properties, states of energy, laws of conservation, balanced chemical equations

4 Organic Molecules
What organic means, carbon sources, combustion reactions, isomers, uses of petroleum

5 Plastics
Plastic utility, synthesis, composition, properties, recycling and disposal

6 Bioorganic Molecules
Hydrogen bonding, proteins, lipids (triglycerides, phospholipids, terpenes, steroids), detergents, carbohydrates, nucleic acids, COVID-19 vaccine

7 Electromagnetic Energy
Electromagnetic radiation, quantum mechanics, IR spectroscopy, UV-visible spectroscopy, NMR spectroscopy, x-ray crystallography, chromophores, Jablonski diagrams, greenhouse gasses and global warming

8 Chemistry and Pharmaceuticals (time permitting)
Drug development, history of sulfanilamide, the FDA, and clinical trials

Learning Outcomes

The course has an emphasis on introducing major areas of chemistry, analytical tools deployed in science, and the development of skills such as critical thinking, problem solving, analysis, and quantitative reasoning; these "professional skills" are essential to success in not just chemistry but also in other courses and in many occupations. Any student receiving credit for Chem 1027A will be expected to demonstrate competence in their ability to:

Course-Specific Expectations	Soft-Skill Expectations
Describe the importance of chemistry in everyday life and the interdisciplinary nature of chemistry.	Work independently.
Develop an appreciation for the complexity of chemistry and biological chemistry.	Obtain, evaluate, and integrate information from various sources, and determine its relevance.
Use basic chemical terminology to describe chemical systems and phenomena.	Prioritize tasks and manage the use of time.
Use critical thinking skills to explain, make connections between, and apply chemical principles, laws, and theories.	Communicate thoughts and ideas verbally and in writing.
Examine, integrate, and critically assess provided or collected information relevant to the field of chemistry.	Recognize when to seek assistance.
Recognize some of the modern ethical issues in chemistry and in science.	Develop respect for, and comply with, regulations and policies.
	Learn to accept responsibility for decisions, actions, and non-actions.

Key Dates

Sept 4	Classes begin
Sept 9	Reflection 1
Sept 30	No Class. National Day for Truth and Reconciliation (observed at Western)
Oct 3	Assignment 1
Oct 13	Thanksgiving. No Class.
Oct 24	Midterm 1
Nov 3	Assignment 2
Nov 3-9	Reading Week
Nov 14	Midterm 2
Nov 21	Assignment 3
Nov 28	Assignment 4, Reflection 2 becomes available on OWL
Dec 1	Last Drop Day
Dec 9	Reflection 2. Last day of class
Dec 11 – 22	Examination Period (schedule TBA by Registrar)

Evaluation

Your grade out of 100 will be calculated as follows:

Component	Notes	Value
Reflection 1	**Due** September 9, 2025	3
Assignment 1	**Due** October 3, 2025	8
Midterm 1	October 24, 2025	16
Assignment 2	**Due** November 3, 2025	7
Midterm 2	November 14, 2025	16
Assignment 3	**Due** November 21, 2025	4
Assignment 4	**Due** November 28, 2025	5
Reflection 2	**Due** December 9, 2025	3
Final Exam (cumulative)	Date set by Registrar	38
		100

Note that *Reflection 2* will become visible on OWL on November 29, 2025.

The instructor may choose to increase the average of any midterm or final exam in any combination when final grades are calculated.

Uploading PDF's and Scanning. All documents uploaded to OWL **must be in pdf format**. Documents that can not be generated as a pdf (such as something drawn by hand) must be *scanned*. Photos will not be accepted. If you don't have a scanner, then use the document scanning feature in a smartphone app such OneDrive or Dropbox. OneDrive is free from the University as part of your Office 365 suite.

Late submissions: *Assignments* and *reflections* will not be accepted after the due date (see below).

Midterms and Final Exam

The midterm tests will take place in-class on Oct 24 and Nov 14. Students will have *50 minutes* to complete the test minus any setup time. The midterm exam is a closed-book assessment except for the allowed crib sheet described above and a simple calculator. The exam may consist of any of the following types of questions: calculations, multiple choice, true or false, matching and/or short answer questions. The weight of a missed midterm with academic accommodation will be added to the final exam.

The final exam is cumulative and will take place during the scheduled final examination period from December 11th - 22nd, 2025. You will have 3 hours to complete the final exam. You may use a simple calculator **but no crib sheet**. The exact date, time and location will be posted by the registrar.

Use of Electronic Devices

Only basic scientific calculators (that cannot connect to the internet) are permitted on tests and exams. All other electronic devices (cell phones, laptops, tablets, cameras, etc.) are prohibited. Students found in possession of prohibited devices will receive a mark of ZERO for the entire test or exam.

Conditions Required to Pass the Course

Students must receive a passing grade of 50% or higher on the final exam and an overall grade of 50% or higher. Students who fail to take the final exam will receive an F (40%) even if the calculated score is higher.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs,* posted on the Academic Calendar: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult Accessible Education.

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:
https://registrar.uwo.ca/academics/academic_considerations/
All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods
- Homework or Reflection

The general academic policy is available here:
https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

Students should note that individual *instructors are not permitted to receive documentation directly from a student*, whether in support of an application for consideration on medical grounds, or for other reasons. All documentation required for absences must be submitted to the Academic Counselling unit or Dean's Office of your home faculty or affiliated college.

Assessments worth less than 10% of the overall course grade:

With academic consideration a missed *assignment* will be reweighed over the average of the other *assignments* or the other *reflection*. Without accommodation missed *assignments* and *reflections* will receive a grade of zero.

Assessments worth 10% or more of the overall course grade:

Missed midterm exams will be automatically be weighted to the final exam regardless of academic consideration.

Missed Final Exam

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

The *tentative* date for the SPC exam is January 8, 2026.

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Additional Statements

Religious Accommodation

When conflicts arise with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - https://www.edi.uwo.ca

Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf.

General Academic Policies

The website for Registrar Services is https://www.registrar.uwo.ca/.

Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as "appeals")

Policy on Request for Relief from Academic Decision: https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate): https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

Scholastic Offences

Policy on Scholastic Offences: https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):
https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

TURNITIN: All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic-related matters: https://www.uwo.ca/sci/counselling/.

Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Learning Skills

Learning-skills counsellors at Learning Development and Success (https://learning.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, https://westernusc.ca/services/.