



COURSE OUTLINE

1. **Course:** CHEM 379, Materials Chemistry for Engineers - Winter 2022

Lecture 01 : MWF 11:00 - 11:50 in CHC 119

Instructor	Email	Phone	Office	Hours
Dr. Amanda Musgrove	amanda.musgrove@ucalgary.ca	--	SA 144F	By appointment: http://ow.ly/Lh4F50HeFPn

Tutorials begin the week of **January 17, 2022 (all tutorial sections)**. See your Student Centre for scheduling, and the course Syllabus and D2L for further information.

Online Communication: Please allow up to two business days for replies to email and other online communications. Responses can be expected during business hours of 8 AM - 6 PM on weekdays. Neither the TA nor the instructor are regularly available outside these business hours.

Zoom: For course components offered online (January 10-Feb 27), links to the synchronous Zoom sessions will be posted to the course D2L site in advance of the first class. Zoom sessions will not be recorded.

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 include an in-person component, during the regularly scheduled lecture times, as follows:

- Monday Jan 10 - Introductory lecture.
- Mondays (after Jan 10) - Open office hour style availability in the classroom. Time is set aside for asynchronous online work and personal Q&A.
- Wednesdays - Review lectures and discussion of in-text questions.
- Fridays - Exploration of materials applications, demonstrations, and group activities.

Midterm exams will be held in agreement with the course modality. Midterm 2 is scheduled in-class during class time (in-person).

Tutorials will be conducted in-person during the scheduled times when permitted. Due to room size limitations, students must attend only the tutorial section in which they are officially registered. Most tutorial sessions will include a graded assessment that will be completed during the scheduled tutorial time.

In most cases, there is not an online alternative for in-person course activities. If students are unable to attend in-person activities after Feb 27, they should contact the course instructor *immediately* - at least before Wednesday January 19 - to evaluate potential options.

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.

Lectures: synchronous activities are supported by asynchronous online content. Students are expected to follow self-study materials (lecture videos and notes) posted to D2L. This content can be completed asynchronously and will remain available throughout term.

While working in an online modality (i.e. until Feb 27), lectures are offered synchronously through Zoom, following the agenda described above. Synchronous lectures are not recorded, but any materials (e.g. handouts) will be posted to D2L after class. Links to Zoom sessions are provided on the course D2L. Lecture attendance is optional, but recommended.

Midterm Exams: Midterms are held in agreement with the course modality at the scheduled times. Midterm 1 will be a SYNCHRONOUS online exam (via D2L), scheduled for Feb 11, 2022 at 5 PM MST.

Tutorials: While working in an online modality (i.e. until Feb 27), tutorials will be offered through a synchronous Zoom session. Tutorial assessments will be submitted online via D2L during this time. Details will be provided on D2L and by your tutorial instructor.

Accommodations for students facing a significant barrier to writing a graded assessment during the scheduled time (i.e. exams and tutorials) will be done on a case-by-case basis, e.g. different time zones, caregiving responsibilities, ability to secure an appropriate test-taking environment. If any student expects to have difficulty completing a synchronous activity during its scheduled timeslot, please contact the course instructor as soon as possible - for ongoing or scheduled conflicts, at least within 10 business days before the graded assessment.

Course Site:

D2L: CHEM 379 L01-(Winter 2022)-Materials Chemistry for Engineers

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 209, or Chemistry 201 or 211, and Chemistry 203 or 213.

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
Tutorials ¹	30%	Ongoing		
Summary Project ²	15%	Ongoing		
Midterm "flex grade" ³	5%	Ongoing		
Midterm 1 ⁴	10%	Feb 11 2022 at 05:00 pm (75 Minutes)	online	D2L
Midterm 2	10%	Mar 25 2022 at 11:00 am (50 Minutes)	in-person	In Class
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

¹ Weekly. Graded work is generally completed during the scheduled tutorial time. There will be both group and individual activities - see D2L for full schedule. There are 8 graded tutorials: two absences will be excused automatically, leaving a total of 6 grades in the final calculation. If a student does not use both absences, the lowest tutorial grade(s) will be dropped instead.

² See D2L for incremental due dates. Includes a group presentation during the last two weeks of tutorial time.

³ Each midterm has a base weighting of 10%, with the remaining 5% assigned to the higher scoring of the two exams. If a student is unable to write one midterm, causing the weight of that midterm to be shifted to the final exam, the "flexible" 5% will be assigned to the remaining midterm.

⁴ This timed, SYNCHRONOUS assessment will be available on D2L at 5 PM MST on Feb. 11, 2022. The assessment is designed to take you 50 minutes of writing time with 25 minutes of "buffer time" to account for any tech issues. It must be completed and submitted before 6:15 PM MST on Feb. 11, 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
Minimum % Required	92.0 %	86.0 %	82.0 %	78.0%	74.0%	70.0 %	66.0 %	62.0%	58.0%	54.0 %	50.0 %

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.

In order to achieve the prerequisite requirements (i.e., C- or better) in this course , a student must:

- Achieve a minimum 50% weighted average on the examinations (Midterms and Final) OR a grade of 50% or above on the final exam.

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.

There are **no deferred midterm exams**. If you are unable to write either midterm exam during the scheduled time, notify the instructor either 10 business days in advance for scheduled absences, or within 48h of the missed exam for emergency absences, so that alternate arrangements can be made. If it is not possible to write the

exam, the weight of the missed exam will be shifted to the final exam.

For tutorial exercises that will be or have been missed, email **the course instructor** (not your TA) to register your absence. Unless there is an extenuating circumstance, the default behaviour for a missed tutorial is to apply one of the two excused absences (See Section 3 of this Outline). If there is a genuine extenuating circumstance, a make-up session or adjusted due date may be scheduled, at the discretion of the instructor and if timing allows.

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

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

Activity	Location	Date and Time	Duration
Midterm 1	Online	Friday, February 11, 2022 at 5:00 pm	75 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.

The timed, SYNCHRONOUS midterm exam will be available on D2L at 5 PM MST on Feb. 11, 2022. The assessment is designed to take you **50 minutes of writing time** with 25 minutes of "buffer time" to account for any tech issues. It must be completed and submitted before 6:15 PM MST on Feb. 11, 2022. See *Section 7 for details on available accommodations for students facing a barrier to writing in the scheduled timeslot.*

6. **Course Materials:**

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 exams and quizzes are to be completed individually by the student submitting the assessment.

Online Assessments (Exams and Quizzes)

Online assessments - including tutorial quizzes and Midterm 1 exam - are "**open-notes**". Reference to your course notes, textbook, and authorized online resources only is allowed. Use of all other websites, online or offline resources during these exams is prohibited. A detailed list of allowed resources will be posted to the course D2L site at least one week prior to the exam.

Online tutorial activities include both individual quizzes (following the same policies as online exams) and open-book or group activities. Please read the instructions for each assignment carefully to determine what resources and degree of communication is allowed. Ask your instructor or TA if you are uncertain *before* using any additional resources or tools.

Online exams include additional "buffer time" to allow for time to scan and submit required documents and to accommodate minor technological issues. All documents and quizzes must be **uploaded, saved, and submitted before the end of the posted exam time**. Any quiz attempts still in-progress at the end of the exam time will be manually submitted with whatever answers have been saved at that time. In the event of a major technological issue that lasts longer than the allotted exam buffer time and prevents timely completion of the exam, contact the course instructor as soon as possible.

For any synchronous assessment, time will be adjusted for SAS students if needed:

- Students who need accommodation for online assessments must contact the course instructor at least 10 business days before the scheduled assessment.
- For exams requiring a length accommodation, the extra time will be calculated from the **base time** ("writing time") of the exam. For example, the midterm is a 50 min exam with 25 min "buffer", for a total of 75 min. A student with a 25% time accommodation would receive $50 + (50 \times 25\%) + 25 = 87.5$ min as their adjusted length. This time will generally be **added to the start of the exam time** - i.e. starting the exam before the rest of the class - unless this results in a conflict with the student's registered class or exam schedule.

As well, accommodations for students facing a significant barrier to writing the assessment during the scheduled time will be done on a case-by-case basis, e.g. different time zones, caregiving responsibilities, ability to secure an appropriate test-taking environment. If any student expects to have difficulty completing a synchronous activity during its scheduled timeslot, please contact the course instructor as soon as possible - for ongoing or scheduled conflicts, at least **within 10 business days before** the exam or assessment.

In-person Assessments (Exams and Quizzes)

All in-person exams are **closed-book**. A formula sheet and periodic table will be provided with the exam - no other resources are allowed (including calculators or any other electronic devices).

In-person tutorial activities include both closed-book individual quizzes (following the same policies as in-person exams) and open-book or group activities. Please read the instructions for each assignment carefully to determine what resources and degree of communication is allowed. Ask your instructor or TA if you are uncertain *before* using any additional resources or tools.

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:

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.

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 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) 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 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](#) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](#) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: 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.

Course Outcomes:

- Use IUPAC-standard nomenclature and structural drawings to describe molecules and the functional groups within them
- Predict chemical and physical properties of a substance or mixture based on the chemical structure(s) (for example: hydrophobicity, miscibility, melting point, solubility, conductivity)
- Use the chemical structures of monomers to predict the physical and chemical properties of polymers created from them (for example: hydrophobicity, T_m, T_g, brittleness, elasticity, conductivity, combustibility, recyclability)
- Explain how changes to processing or physical structure (e.g. layering, nanostructure) can change the observed properties of a material without changing its chemical structure
- Explain how naturally occurring materials can inspire the structure and function of synthetic “man-made” materials

Electronically Approved - Jan 20 2022 16:09

Department Approval

Electronically Approved - Jan 20 2022 17:16

Associate Dean's Approval