



COURSE OUTLINE

1. **Course:** CHEM 379, Materials Chemistry for Engineers - Winter 2021

Lecture 01: MWF 11:00 - 11:50 - Online

Instructor	Email	Phone	Office	Hours
Dr. Amanda Musgrove	amanda.musgrove@ucalgary.ca	403 220-2745	SA 144F	TBA (see D2L)

Tutorials begin the week of **January 18, 2020 (all tutorial sections)**. Information about these synchronous Zoom sessions will be posted to D2L.

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. Please use Piazza for maximum visibility of non-personal questions during "off hours".

Online Delivery Details:

This course is being offered online in real-time via scheduled meeting times, 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.

This course has a registrar scheduled, synchronous final exam. The writing time is 2 hours + 50% buffer time.

All course components are offered online.

Tutorial Sessions:

All tutorial sessions feature group-work and as such must be completed synchronously (all registered students attend at the same time). Tutorials are in general every week - see your Student Centre to confirm the time at which you are registered. Information on connecting to the class Zoom session will be posted to D2L.

Lectures:

Lectures will be offered using a hybrid model: some course content will be presented as pre-recorded (asynchronous) videos, and class time will be used for live (synchronous) problem review and Q&A. In general, the schedule will be:

- Monday class times are set aside for student self-study and video watching (no synchronous activities)
- Wednesday class times will be a 'live' Q&A session (no set topic)
- Friday class times will review material from the week and focus on problem-solving and practice.

Attendance at the synchronous class sections is optional, but **the sessions will not be recorded**. No new material will be introduced during the synchronous sessions. Problems done during the Friday sessions will be available through the course D2L site for self-study after class time.

Exams:

Midterms (in-class) and final exam will be written **synchronously** - the whole class will write during the scheduled time window.

If you need time-shift accommodations for **any** synchronous course component(s), contact the course coordinator, Dr. Amanda Musgrove (amanda.musgrove@ucalgary.ca) as soon as possible:

- For recurring course components, notice is required before **January 18th or within 2 days of registering in the course**, whichever is later.
- For exams or emergent situations during term, notice is required **minimum 10 business days** before the scheduled activity or exam date.

Course Site:

D2L: CHEM 379 L01-(Winter 2021)-Materials Chemistry for Engineers

Piazza (Q&A site): [https:// piazza.com/ucalgary.ca/winter2021/chem379](https://piazza.com/ucalgary.ca/winter2021/chem379)

Note: Students must use their U of C account for all course correspondence.

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:

Component(s)	Weighting %	Date(s)	Note	Mode
Tutorial Activities (8 Activities)	25	Most weeks throughout term	See Syllabus and D2L for detailed schedule. Up to two absences from activities will be excused automatically. ‡	Synchronous
Summary Project (1 project)	20	Presentation during last 2 weeks of class, in tutorials	See Syllabus and D2L for project details and intermediate due dates.	Group Project: Synchronous/Asynchronous
Midterms (2 exams)	25*	February 10: In class 11-11:50 AM March 17: In class 11-11:50 AM	Two exams. Each is a 30 min exam + 15 min of "buffer time".	Synchronous
Final Exam (1 exam)	30	TBD (3 hr)	Scheduled by the Registrar during the Apr. exam period. 2 hr exam + 1h "buffer time".	Synchronous
* 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 exam to be shifted to the final exam, the "flexible" 5% will be assigned to the remaining midterm. ‡ If the student does not use both excused absences, the lowest tutorial grade(s) will be dropped to a total of 2 excused tutorials.				

For any synchronous assessment, time will be adjusted for SAS students if needed (see Section 7 for additional details). 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 coordinator, Dr. Amanda Musgrove (amanda.musgrove@ucalgary.ca) as soon as possible:

- For recurring course components, notice is required by **January 18th or within 2 days of registering in the course**, whichever is later.
- For exams or emergent situations during term, notice is required **minimum 10 business days** before the scheduled activity or exam date.

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 final exam that will be scheduled by the Registrar. [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.

The final exam will be administered using an on-line platform. Per section [G.5](#) of the online Academic Calendar, timed final exams administered using an on-line platform, such as D2L, will be available on the platform. Due to the scheduling of the final exams, the additional time will be added to **the end** of the registrar scheduled **synchronous** exam to support students. This way, your exam schedule accurately reflects the **start time** of the exam for any **synchronous** exams. E.g. If a **synchronous** exam is designed for 2 hours and the final exam is scheduled from 9-11am in your student centre, the additional time will be added to the **end** time of the **synchronous** exam. This means that if the exam has a 1 hour buffer time, a synchronous exam would start at 9 am and finish at 12pm. - **updated April 6, 2021**

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)

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, then the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course.

There are **no deferred midterms**, however some accommodations may be made for time zone adjustment and technological issues in submission. 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 course conflicts, or within 48h of the missed exam for emergency absences, so that alternate arrangements can be made. If it is not possible to complete the exam within an acceptable timeframe, 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 notify her of your absence. Unless there is an extenuating circumstance, the default behaviour for a missed tutorial is to apply one of the two excused absences. 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:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

Specific to this course:

- This course uses in-class discussions and group work. Use of a camera and microphone during Zoom sessions will be beneficial.
- Zoom - for attending lecture and office hours. Required for completing the Tutorial activities.
- Office 365 suite: (Available to students at no additional cost)
 - **OneNote** - for accessing notes and assignments.
 - **Word** - or equivalent word processor.
 - **PowerPoint** - or other software / app capable of creating simple graphic displays
 - Optional - access to basic video recording and editing software (such as that included in PowerPoint, Yuja, or others) if you wish to take the pre-recorded presentation option for your Project.
- **PDF viewer** (e.g. Acrobat Reader, Nitro Reader). Preview (on Mac) or in-browser reader is not sufficient.
- A **scanner or phone app** that can save documents/photos as PDF (e.g. OneDrive app). ****Required for exams.**

General university-wide requirements:

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:

Midterm and final exams are "open-notes". Reference to your course notes, textbook (electronic or paper edition), and authorized online resources only will be 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 at least one week prior to each exam. All exams are to be completed individually by the student submitting the exam. All sections will write the same examinations. The questions are based on input from all course instructors.

Other course activities may allow additional resources to be used or collaboration in groups. Please read the instructions for each assignment carefully to determine what resources and degree of communication is allowed.

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. 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 coordinator (amanda.musgrove@ucalgary.ca) as soon as possible. An extended time or deferral of the grade across other course components may be possible.

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

- 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 10 business days before any scheduled activity for which accommodations are required. An email confirming mutual understanding of the accommodations will suffice.
- For exams requiring a length accommodation, the extra time will be calculated from the **base** time of the exam. For example, for a 60 min exam with 30 min "buffer" (total of 90 min), a student with a +25% time accommodation would receive $60 + (60 \times 25\%) + 30 = 105$ 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 synchronous 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 coordinator, Dr. Amanda Musgrove (amanda.musgrove@ucalgary.ca) as soon as possible:

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- For exams or emergent situations during term, notice is required **minimum 10 business days** before the scheduled activity or exam date.

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/policies/files/policies/sexual-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:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Chemistry, Dr. Yuen-Ying Carpenter by email ahugchem@ucalgary.ca or phone 403-220-6908. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- 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. SU Faculty Rep., Phone: [403-220-3913](tel: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 - Apr 06 2021 16:03

Department Approval