



## COURSE OUTLINE

### 1. **Course:** CHEM 201, General Chemistry: Structure and Bonding - Fall 2021

Lecture 01: MWF 13:00 - 13:50 - Online

Instructor	Email	Phone	Office	Hours
Dr Vivian Mozol	vjmozol@ucalgary.ca			Online, see D2L website for exact times

Lecture 02: TR 09:30 - 10:45 - Online

Instructor	Email	Phone	Office	Hours
Dr Pierre Kennepohl	pierre.kennepohl@ucalgary.ca	TBA	SB 231	TBA

#### Coordinator(s)

Name	Email	Phone	Office	Hours
Dr Vivian Mozol	vjmozol@ucalgary.ca			Online, see D2L website for exact times

**Lab Coordinator:** Dr. Bronwen Wheatley. bmmwheat@ucalgary.ca

*Lab Activities occur weekly except for the week of the National Day for Truth and Reconciliation (September 27th-October 1st, 2021), and Term Break (November 8th-12th, 2021). Please see the calendar in the course syllabus for the weekly schedule & your student centre for the exact time your Zoom session will take place.*

#### 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.

**The learning outcomes for the course will be delivered synchronously.** The learning objectives, and a class calendar outlining which learning objectives are covered each week, can be found within the Syllabus for the course posted on the D2L website. Students will be assessed on their understandings of the course content via the following two, synchronously scheduled course components:

**Lecture.** Beginning September 7th, 2021, Zoom lectures will occur weekly on Monday Wednesday, and Friday at 1-1:50 p.m. for L01 and on Tuesday and Thursday at 9:30 - 10:45 a.m. for L02. Recordings of these classes will be made and posted for review within D2L. When appropriate students will work in unstructured groups (using breakout rooms in Zoom). Both sections will check your understanding periodically through in-class discussions and polling.

**Labs.** Students will also meet via Zoom for structured, synchronous group-work on video or text-centered activities, as scheduled in their Student Center beginning September 14th, 2021. These smaller group Zoom sessions will not be recorded. Overall there are ten Lab Activities worth 50% of the course grade. For details on the grading of individual and group components of each lab activity, see Section 3.

#### Course Site:

D2L: CHEM 201 L01 - L02 - (Fall 2021) - General Chemistry: Structure and Bonding

**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 30 (or Continuing Education - Chemistry 2) and one of Mathematics 30-1 or Mathematics 2 (offered by Continuing Education).

### Antirequisite(s):

Credit for Chemistry 201 and any of 209, 211 or 301 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:

**All course assessments are synchronous** (except lab preparation activities, worth 0.5% each).

Component(s)	Weighting %	Dates
Lab Activities* x 10	50%	Scheduled within an individual's student center. Start the week of September 13th, 2021.
Midterm Exam	15%	Synchronous, on Friday, October 22nd 2021, 5-7pm. 1 hr 15 min writing + 45 min buffer for technical difficulties.
Final Exam	35%	To be scheduled by the registrar; synchronous 2-hour exam + 1-hour of buffer time

For any synchronous assessment (lab activity, midterm, final exam), time will be adjusted for SAS students if needed. 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*. Students who need accommodation must contact the lab (Dr. Wheatley; [bmmwheat@ucalgary.ca](mailto:bmmwheat@ucalgary.ca)) or course coordinator (Dr. Mozol; [vjmozol@ucalgary.ca](mailto:vjmozol@ucalgary.ca)) at least 14 days in advance of the scheduled assessment in question.

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\* **The 10 Lab Activities** (5% each) will combine structured, synchronous group-work and individual-work.

Each activity will be graded both...

- o ... individual preparative work in the form of reflective worksheets or a D2L quiz (0.5%), and
- o ... an in-lab activity discussed in groups during the lab session (4.5%).

During video-centered activities (5 of 10 weeks), the in-lab activity will be submitted *individually* at the end of the laboratory period at the end of the group discussion(s). During the text-centered activities, the in-lab activity will be submitted in small groups - all group members will receive the same grade.

All work related to each lab activity (including preparative work) will be accepted for grading and feedback up to 90 minutes after the end of the zoom session.

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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
<b>Minimum % Required</b>	95.00 %	87.00 %	82.00 %	77.00%	72.00%	66.00 %	62.00 %	58.00%	54.00%	50.00 %	45.00 %

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.

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In order to achieve the prerequisite requirements (i.e. C-) for future Science courses, a student must meet **ALL** of the following requirements:

- 1) Achieve a minimum AVERAGE grade of 50% on the laboratory activities for the course
- 2) Achieve the minimum average of 50% for a minimum of 7 of the 10 laboratory activities (to reflect meaningful completion) and
- 3) Achieve a minimum grade of 50% on the WEIGHTED AVERAGE of the online Midterm and Final Exams.

Therefore, if **ANY** of the above three are not met a maximum grade of D+ will result.

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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 will be no deferred midterms. If a student is unable to attend the midterm then the 15% of the course grade assigned to the midterm exam will be pro-rated to the final exam.

Attendance for up to three of the ten lab activities in this course could be excused in extenuating circumstances.

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

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

Activity	Location	Date and Time	Duration
Midterm	Online	Friday, October 22, 2021 at 5:00 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:

Recommended Textbook(s):

Flowers, Theopold, Langley, Robinson et. Al., *Chemistry: Open Stax*: Open Stax.

### Important note about your textbook:

- Our recommended texts are open-educational resources, freely available online. The primary resource is the OpenStax Textbook available via their website (OpenStax Chemistry: <https://openstax.org/details/books/chemistry>) & within D2L. A secondary resource is our own Department of Chemistry Textbook: <https://wpsites.ucalgary.ca/chem-textbook/> that will also be available within D2L.

### Recommended resource so instructor can monitor class progress:

- When monitoring your progress different tools will be used in the lecture sections. Students are strongly encouraged to participate in this ungraded, formative assessment. The instructor of L01 will be using TopHat while the instructor for L02 will be using polls within Zoom. Access to TopHat is free for registered students. Details regarding registration of TopHat can be found via the link for L01 in D2L.

### Other Recommended Course Materials

- A Model Kit is recommended but not required. (Molymod kits are suggested and are available through the University of Calgary Bookstore).

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:

Any student with academic accommodations must be registered with Student Accessibility Services (see Section 12(e) below), and must identify themselves to their instructor as soon as possible.

The Midterm and Final Exams are synchronous, timed, open book exams to be completed individually. It is assumed that students will act with academic integrity and not work collaboratively with their peers unless otherwise indicated. In order to ensure you are dealing with correct course content the resources you are allowed to use in an open book exam are: Your recommended course textbooks (OpenStax or the Department of Chemistry Text found within D2L) or an equivalent, self-contained first-year Chemistry textbook or e-textbook (e.g. Silberberg American edition, Zumdahl, Brown & LeMay, etc) that you have been looking at as you are learning the course material. Your personally created course notes. Any collaborative notes created during group work done during Tutorial or Lab Activities. Any material posted by your instructor for your use within D2L.

It is expected that the Midterm Exam should take a student no more than one hour and fifteen minutes to complete, but students will be given a total of two hours, as scheduled by the registrar. The extra 45 minutes is designed to accommodate any technical issues. The Final Exam should take a student no more than two hours to complete, but students will be given three hours, as scheduled by the registrar. The extra hour is designed to accommodate any technical issues.

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

## 8. Approved Mandatory And Optional Course Supplemental Fees:

**Not applicable.**

## 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.

## 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](http://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 ([syva@ucalgary.ca](mailto:syva@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](mailto: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](tel:403-220-3911) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). [Student Ombudsman](#), Email: [ombuds@ucalgary.ca](mailto: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.
13. In addition to the Lecture component of the course, students are scheduled for a Lab Component. You must attend your assigned laboratory time slot unless you have been given written permission by the lab coordinator to do otherwise.
- o **Lab Activities:** Laboratory activities will begin the week of September 13th, 2021. These activities will occur via Zoom. There are ten activities each worth 5% of your final grade. Attendance for up to three of the ten activities could be excused in extenuating circumstances (see section 4. of this course outline regarding Missed Work). The overall average grade obtained for the Lab component of the course must be 50% to be eligible for a pre-requisite pass for the course (see Section 3). Details for each activity are posted in D2L the week prior to the activity.
  - o **Laboratory Exemptions:** Video-centered lab activities are most similar to the traditional experiments performed in previous in-person versions of this course. Students repeating the course within the last three years can, therefore, potentially be exempted from the video-centered activities (25% of the course grade; Weeks of Sep 14, Oct 12, Oct 26, Nov 16, and Nov 30).
  - o Exemption from the video-centered activities requires that a grade of 75% or higher was obtained on the lab portion of the course in the previous attempt. Exempted students are still expected to complete the text-centered lab activities (25% of the course grade; 5 lab activity weeks not listed above).
    - Students considering exemption from the video-centered lab activities should be aware that content related to these activities will be examined in the Midterm and Final Exams. It is **strongly recommended**, therefore, that students do not apply for exemption and instead complete all ten lab activities. If an excused absence is granted, the lab grade achieved on the previous attempt for this course will be carried forward and applied to the portion of the activities that are video-centered (25% of the course grade).
    - Prior to applying for an exemption, students are encouraged to connect with their lab or course coordinator to better understand the risks and benefits of an exemption, as well as what access they will (or will not) have to lab materials or feedback as an exempt student. Students applying for a lab exemption should contact the Undergraduate Science Center ([science.advising@ucalgary.ca](mailto:science.advising@ucalgary.ca)) **no later than Monday September 13th, 2021** to apply. Students registering in the course after this date should contact the USC as soon as possible if they wish to apply for an exemption.

#### **Course Outcomes:**

- OBSERVATION/ANALYSIS: Collect and analyze observations related to experiential chemical activities.
- ATOMS; Use the quantum theory description of the energy and spatial distribution of electrons to correlate the physical properties of atoms with how atoms interact
- CHEMICAL SPECIES; Generate Lewis & VSEPR diagrams and use bonding theories to describe and evaluate the connectivity between atoms and spatial arrangement of bonding in a chemical species
- COLLECTIONS OF CHEMICAL SPECIES; Identify the charge distribution in a chemical species and use it to illustrate how collections of chemical species will interact with each other physically and chemically.

Electronically Approved - Sep 04 2021 18:52

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**Department Approval**

Electronically Approved - Sep 07 2021 10:33

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**Associate Dean's Approval**