



COURSE OUTLINE

1. **Course:** CHEM 431, Inorganic Chemistry: Main Group Elements - Fall 2020

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

Instructor	Email	Phone	Office	Hours
Dr Roland Roesler	roesler@ucalgary.ca	403 220-5366	SB 339	Mo 14:00 - 15:00; We 14:00 - 15:00.

In Person Delivery Details:

Five wet labs will be completed in person at the scheduled time and location (EEL 253) and two dry labs will be completed individually (asynchronously). All laboratory groups will be split into two groups of 10 students attending the wet labs in alternating weeks. The complete laboratory schedule will be available on D2L by Monday, September 14.

Students will need to contact the instructor as soon as possible if unable to attend any in-person component (wet lab).

Wearing masks in the lab is recommended but not mandatory.

Re-Entry Protocol for Labs and Classrooms:

To limit the spread of COVID-19 on campus, the University of Calgary has implemented an Instructional Space Re-Entry Protocol that must be followed. Details are found in the [Covid-19 Protocol for Class and Lab re-entry.pdf](#) document. **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.

All lectures in this course will be delivered online via Zoom, synchronously (live). All lecture slides will be provided via D2L, but lecture notes or recordings will not.

The midterm examinations will be written synchronously (live) on the scheduled dates (see Section 5).

The oral final examination will take place individually and remotely, live via Zoom at a time scheduled upon mutual agreement during the fall exam period. A web camera is required for this examination.

Course Site:

D2L: CHEM 431 L01-(Fall 2020)-Inorganic Chemistry: Main Group Elements

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 201 or 211; and 203 or 213; and 351. Also known as: (formerly Chemistry 331)

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
Laboratory Experiments (In-Person)	25%	See schedule on D2L no later than Sep 14
TopHat e-learning (Hybrid)	10%	
Midterm Tests (Synchronous, see Section 5)	25%	Oct 9: 10% & Nov 6: 15%
Final Examination (15 minutes oral via Zoom)	40%	Scheduled individually upon mutual agreement during exam session. Scheduling will be completed by November 6.

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	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	50 %	45 %

Top Hat questions will be a mix of synchronous questions (submitted by students during class time) and asynchronous homework questions over the course of the term.

To satisfy the pre-requisite requirements (i.e. C-) for further chemistry courses, a student must meet all three of these requirements:

- Complete a minimum of 4 out of 5 wet labs,*and*
- Achieve a minimum 50% grade in the laboratory component,*and*
- Achieve a minimum 50% grade for the weighted average of the term tests and final examination

A student who does not meet all three requirements will receive a final grade of no greater than D+.

Students will be expected to understand at every stage the material covered in all components of the course. The midterm examinations and the final are comprehensive, examining all material taught until the date of the respective exam.

For any synchronous assessment, time will be adjusted for SAS students if needed and accommodations for students will be done on a case-by-case basis. Both midterm exams are designed to be written by students in 50-minutes, but an additional 25-minutes has been added as a buffer for technical issues.

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.

Any missed components for which an excused absence is not approved will receive a grade of zero.

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	On-line	Friday, October 9, 2020 at 6:00 pm	75 Minutes
Midterm 2	On-line	Friday, November 6, 2020 at 6:00 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.

6. Course Materials:

Recommended Textbook(s):

Gary L. Miessler, Paul J. Fischer, Donald A. Tarr, *Inorganic Chemistry, Fifth Edition (2014)*: Pearson.

Lab coats and safety glasses must be worn in the laboratory at all times.

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 are closed book. You may not access your lecture notes or any other resources during exams. No other aids are allowed on tests or examinations, including accessing internet resources such as search engines (Google, etc.), other websites, shared documents (Google docs etc.) or chat servers (Discord, WhatsApp, etc.), etc., and you are specifically prohibited from working with or contacting any other individuals while you complete the exam. Violation of these rules is considered academic misconduct (see also Item 12(d), below).

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.

- 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 (syasa@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 misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- 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.

13. Laboratory Safety Course. All undergraduate students taking chemistry laboratories are required to complete an introductory course (approx. 50 minutes) on laboratory safety. Students who have previously completed the Chemistry Safety Course at the University of Calgary in the past five years are NOT required to repeat it. The safety course is presented in an online format. The Safety Course must be completed before Tuesday, September 15. The material is considered to be part of the course and is therefore appropriate for inclusion into laboratory pre-labs and exams.

14. Laboratory Exemptions. Students repeating the course within the last two years can be exempted from the Laboratory Component of the course if a grade of 75% or higher was obtained on the lab portion. Students choosing to exempt from the lab should be aware that the lab grade achieved on the previous attempt will be carried forward.

Prior to applying for an exemption, students are encouraged to connect with their course instructor or coordinator to better understand the risks and benefits in their specific online course, 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) **no later than Monday September 14th, 2020** 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:

- Describe the structure and bonding in inorganic and organometallic compounds of Groups 3 - 12 elements using advanced bonding theories
- Understand the symmetry of chemical species and apply it to interpret and make predictions regarding vibrational spectra and molecular orbital diagrams
- Discuss the bonding, structure and properties of crystalline solids
- Make educated predictions regarding the chemistry of compounds of Groups 1, 2, and 13-18 elements
Identify applications of Groups 1, 2, and 13-18 elements and their compounds and correlate properties with applications
- Conduct laboratory experiments in synthetic inorganic chemistry following simple procedures, and communicate the results in laboratory reports

Electronically Approved - Sep 09 2020 10:10

Department Approval

Electronically Approved - Sep 09 2020 11:41

Associate Dean's Approval