



## COURSE OUTLINE

### 1. **Course:** CHEM 431, Inorganic Chemistry: Main Group Elements - Fall 2021

Lecture 01: MWF 12:00 - 12:50 in EDC 179

Instructor	Email	Phone	Office	Hours
Dr Roland Roesler	roesler@ucalgary.ca	403 220-5366	SB 339	Mo 11:00 - 12:00; We 13:00 - 14:00.

#### In Person Delivery Details:

All components of this course (lectures and laboratory) will be delivered in-person.

Under extenuating, COVID-pandemic driven circumstances, the lecture delivery would be **temporarily** switched online (Zoom), e.g. *major class outbreak, instructor self-isolating after close contact*. Notice would be posted on the classroom door and on D2L if an emergency switch is required.

All laboratories start the week of September 13.

Lectures are not recorded but the lecture slides are posted on D2L after class.

#### 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](#).

#### Course Site:

D2L: CHEM 431 L01-(Fall 2021)-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 (10 lab reports submitted to the TA on-paper a week later, during the subsequent lab session)	25%	
e-learning (TopHat, in-class)	10%	
Midterm Tests* (2) in class during regular lecture hours	20%	Oct 8: 10% & Nov 5: 10%
Final Examination	45%	Scheduled by the Registrar

\* The midterm examinations and the final are comprehensive, examining all material taught until the date of the respective exam. A higher percentage obtained in the final examination will automatically replace a lower percentage obtained in one or both midterm examinations (e.g. Midterm I 80 %, Midterm II 64%, Final 73% will be calculated as Midterm I 80 %, Midterm II 73%, Final 73%). **Students must have attempted both midterm examinations in order to be eligible for this substitution.**

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

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.

Students will be expected to understand at every stage the material covered in all components of the course.

A mark of less than 50% in the laboratory component and/or on the weighted average of the term tests and final examination will result in a final grade of no greater than D+, which does not satisfy the pre-requisite requirements for further chemistry courses.

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.

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

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

#### 6. **Course Materials:**

Recommended Textbook(s):

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

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:**

Molecular modeling kits are allowed on midterm tests and final examinations. No other aids are permitted.

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](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 ([svsa@ucalgary.ca](mailto: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](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 (FOIP). 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.

- Students repeating the course within the last three years can be exempted from the Laboratory Component of the course if a grade of 75% or higher was obtained. Students choosing to exempt from the lab should be aware that,
  - the material covered in labs may be integrated into non-lab-based course assessments; and,
  - 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 course, particularly if these labs are not in the same format (online or in-person) this semester. Instructors can tell you what access you will have (or not have) to lab materials as an exempt student, and how the lab materials may be integrated.
- Applications for lab exemptions must be emailed to the Undergraduate Science Center [science.advising@ucalgary.ca](mailto:science.advising@ucalgary.ca) by Monday September 13, 2021. 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 16 2021 16:55

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**Department Approval**

Electronically Approved - Sep 20 2021 14:44

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**Associate Dean's Approval**