



COURSE OUTLINE

1. **Course:** CHEM 531, Advanced Inorganic Chemistry: Transition Metals - Fall 2021

Lecture 01: MWF 10:00 - 10:50 - Online

Instructor	Email	Phone	Office	Hours
Dr Farideh Jalilehvand	faridehj@ucalgary.ca	403 220-3855	SB 213	TBA

Lectures and Tutorial sessions will be delivered in synchronous mode. **Online tutorial activities are scheduled on Thursdays 10:00 - 10:50 MT.** Students are required to attend the tutorial sessions and Group Presentations.

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.

Term Tests will be held synchronously (live) on the scheduled times/ dates (see Section 5).

To accommodate students who are living in different time zones, the lectures will be recorded and automatically posted on D2L. Access to the recorded lectures may be granted for individual private study only at the discretion of the instructor. Tutorial sessions will not be recorded.

Course Site:

D2L: CHEM 531 L01-(Fall 2021)-Advanced Inorganic Chemistry: Transition Metals

(For accessing synchronous Zoom sessions; submitting essay, assignments, exams and surveys; lecture materials)

Microsoft Teams: CHEM531 Fall 2021 (Please activate [Multi-Factor Authentication](#) (MFA) in your U of C account.)

(For communications, for example, during exams; Office Hour meeting; Group Meetings)

OneNote: You will receive an access link via D2L (for annotated lecture notes)

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

Dr. Jalilehvand will respond e-mails/ Teams chats within 24 hours (except on weekends and holidays).

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Chemistry 331 or 431; and 333 or 433; and one of 353 or 355.

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 % ²	Date ³
Team Contract ¹	1%	Sept. 13, 2021 (by 23:30 MT)
Assignment I (Individual Quiz - Review)	3%	Sept.13, 2021 (by 23:30 MT)
Assignments II - VII (Group)	18%	Sept. 17 - Dec. 3, 2021 (by 23:30 MT)
Essay (Group)	3%	Sept. 24, 2021 (by 23:30 MT)
Term Test I (Individual) ⁴	15%	Oct. 8, 2021 (<i>synchronous</i> ; 18:00 - 20:30 MT)
Term Test II (Individual) ⁴	20%	Nov. 5, 2021 (<i>synchronous</i> ; 18:00 - 21:00 MT)
Presentation (Group)	10%	Nov. 15 - 26, 2021 (<i>synchronous</i>) during Lecture and Tutorial times ⁵
Final Exam (Individual) ⁴	30%	To be scheduled by Registrar (<i>synchronous</i>)
Total	100%	

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 %	85 %	80 %	75%	70%	65 %	60 %	55%	50%	45 %	40 %

A student must achieve a minimum 50% weighted average on the examinations (Term Tests and Final) to pass this course, i.e. to receive a grade C- or higher.

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.

3.1. To encourage collaborative learning, students will be assigned to groups of five at the beginning of the semester. ITP Metrics will be used for team building (itpmetrics.com). To build a strong learning team, students in each group will be guided to document their shared expectations and standard operating procedures on topics that are essential for their team's success in this course, and sign their "Team Contract" early on. Students will be asked to complete "Collaborative Learning Evaluation Forms" to evaluate their own contribution in a specific group activity, have peer-evaluation, as well as Group self-evaluation at least 4 times during the semester. Student groups are advised to meet virtually at least twice per week.

Weekly tutorial time is dedicated to group work, so students must attend and participate synchronously during this time. If a student is unable to attend these synchronous sessions (e.g. due to significant time zones differences), they need to reach out to the instructor immediately (by **September 8 at 12:00 pm MT**), before groups are formed for the first tutorial session. Students in this situation may be placed in a smaller group to accommodate group work occurring in an alternative time.

3.2. For each Group activity, the grade of individual members includes both an assessment of the work submitted, and an assessment of their contribution to the group.

3.3. Each group can have **one "Late submission" (max: 48 hrs) without penalty for their Group Assignments/Group Essay**. Groups who would like to take advantage of "Late submission" need to inform the course instructor before the assessment's submission deadline.

Late submissions exceeding the limit (frequency or time) would be considered as "Missed Term Work" (see Section 4).

3.4. **All exams are cumulative and synchronous**. There will be no deferred Term Test for this course.

3.5. Groups have the opportunity to choose their presentation topic and preferred date during the week of presentations by **October 1, 2021**. The final schedule for presentations will be posted on course D2L site by **October 5th, 2021**. Groups have the option to either present live (~4 min for each member in a group of 5), or prerecord a 20-min video of their presentation to share via Zoom during their presentation time, when each presenting student will introduce themselves. The presentation time should be distributed equally among the group members. Q&A session after each presentation will be live. Students are **required** to attend all Group Presentations.

The University of Calgary offers a [flexible grade option](https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade), 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.

For this course, there will be no deferred Term Test, and excused absence may be considered for only ONE of the two Term Tests. The missed Term Test weight will be shifted to the Final for students with a legitimate reason for absence.

If a student missed an assessment piece (Term Test, essay, assignment or presentation) for non-legitimate reasons, the contribution of that piece in the final course grade will be zero.

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

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

Activity	Location	Date and Time	Duration
Term Test I	Online	Friday, October 8, 2021 at 6:00 pm	150 Minutes
Term Test II	Online	Friday, November 5, 2021 at 6:00 pm	180 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 start time is at **6:00 PM Mountain Time.**

6. **Course Materials:**

Recommended Textbook(s):

Miessler, G.L., Fischer, P.J. and Tarr, D.A., *Inorganic Chemistry (5th Edition)*: Pearson.
Crabtree, R.H., *The Organometallic Chemistry of the Transition Metals (7th Edition)*: Wiley.
Housecroft, C.E. and Sharpe, A.G., *Inorganic Chemistry (4th or 5th Edition)*: Pearson.

Lecture slides will be available through D2L; students can access annotated lecture slides at the end of each lecture via OneNote, but tutorial notes will not be posted.

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:

Students who require accommodation must be registered with Student Accessibility Services (see section 12 (f.) below), and must identify themselves to their instructor as soon as possible.

All students must start writing the Term Tests and Final exams within 30 min of the exam's start time.

The Term Test I exam is designed to take 100 minutes for students to complete, but students will be given additional 50 minutes to account for any technical issues (e.g. internet interruption, D2L time out, etc.). Both Term Test II and the Final exam are designed to take 120 minutes for students to complete, but students will be given additional 60 minutes to account for any technical issues. **Time will be adjusted for SAS students if needed, and accommodation for students will be made on a case-by-case basis.**

The Term Tests and Final exam will be "Open-book" (limited to course materials, i.e. lecture/ tutorial slides or notes, student presentations, articles shared during the course, and the recommended textbooks) and must be completed **individually**. Any form of communication (other than with the Prof) during the writing constitutes academic misconduct. It may consist of any combination of an online D2L quiz or long answer worksheet - to be submitted (as a scanned image, doc or pdf file) through D2L Dropbox for grading. Note that there will be no deferred Term Test for this course.

Students who cannot write the Term Tests at the same time as others synchronously, have to contact the instructor at least **14-days** before the exam. Accommodation will be made so the student can write the exam during 8:00 AM - 10:00 PM MT on the day of the exam.

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 (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/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](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:

- By the end of the course, students will be able to:
- Explain structure and bonding in Groups 3-12 organometallic complexes based on bonding theories, correlating it to their spectroscopic and crystallographic data.
- Differentiate between certain types of reactions that Groups 3-12 inorganic and organometallic complexes may undergo, explain their mechanism, and predict their reaction products.
- Recognize the use of Groups 3-12 elements and their complexes in homogeneous and heterogeneous catalysis, and discuss major applications of such catalysis.
- Communicate applications of Groups 3-12 elements and complexes (orally and in writing) based on scientific literature

Electronically Approved - Sep 07 2021 19:05

Department Approval

Electronically Approved - Sep 08 2021 15:21

Associate Dean's Approval