INORGANIC CHEMISTRY - SYLLABUS

Welcome to Inorganic Chemistry! In this course we cover key concepts in inorganic chemistry: symmetry, bonding, electronic structure, and reaction mechanisms. Inorganic molecules can have fascinating structures that are examined using symmetry principles and molecular orbital theory. Transition metal complexes have magnificent colors and magnetic properties that are intimately linked to their electronic structure. Finally, reaction mechanisms are at the heart of catalysis mediated by transition metals, from organometallic catalysts to metalloenzymes.

Teaching Assistants: Michael Dorantes, doran080@umn.edu

Instructor and TA office hours will be set during the first week of classes. Office hours begin the week of September 9.

Textbook:


Class Canvas website: https://canvas.umn.edu/courses/134289

Grading:
The overall course grade is determined by quizzes/group activities (5 pts each x 10; total 50 pts, 12.5%), two 1-hour exams (100 pts each, 25% each), and one 2-hour final exam (150 pts, 37.5%). The maximum total score you can earn is 400 pts. The final letter grade is determined by the distribution of total points. After each exam, the instructor will provide the corresponding letter grade so to help you keep track of your grade throughout the semester.

Quizzes & group activities will be held in class every 1-1.5 weeks (5 pts each). Quizzes and activities will be announced in the prior class. Do show up early on these days, so you are ready to start on time. There is no make-up for missed quizzes/activities. Only 10 of these will count toward your final grade. Any lowest scores (in excess of 10) will automatically be dropped.

Exams are 1 hour in duration. They are scheduled during class time. Exams can only be taken at the scheduled times (see below). There are no make-up exams. For students out-of-town during exam dates for University-sponsored activities, please make prior arrangements to take the exam on the road or in advance. Please give the instructor two weeks notice.

Final exam is 2 hours in duration. Half of the final will test material covered after exam 2, and the other half of the exam will cover materials tested on the two exams.

Exam Information:

<table>
<thead>
<tr>
<th>Quizzes/Activities</th>
<th>every 1 to 1.5 weeks</th>
<th>class time, Smith 231</th>
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</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>Friday, October 11</td>
<td>class time, Location TBD</td>
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<tr>
<td>Exam 2</td>
<td>Friday, November 15</td>
<td>class time, Location TBD</td>
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<tr>
<td>Final Exam</td>
<td>Tuesday, December 17</td>
<td>8:00 to 10:00 am, Location TBD</td>
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Homework:
Homework problems will be assigned from the textbook. *No homework will be collected or graded.* The solution manual for the textbook is free and available at: [https://www.pearsonhighered.com/chemistryresources/](https://www.pearsonhighered.com/chemistryresources/)

Topics and Reading: (in chronological order)

- **Chapter 4** Symmetry and Group Theory
- **Chapter 5** Molecular Orbitals
- **Chapter 10** Coordination Chemistry II: Bonding
- **Chapter 11** Coordination Chemistry II: Electronic Spectra
- **Chapter 13** Organometallic Chemistry
- **Chapter 12** Coordination Chemistry IV: Reactions and Mechanisms
- **Chapter 14** Organometallic Reactions and Mechanisms

**Pre-requisite topics:** Chapters 2 and 3 on atomic structure and simple bonding theory are requisite background for the course. Chapter 9 on Coordination Chemistry I: Structure and Isomers is also relevant background for Ch. 10–14. These topics would have been covered in CHEM 1061/1062 or the equivalent course.

Class Policies

For a complete list, see: [https://policy.umn.edu/education/syllabusrequirements-appa](https://policy.umn.edu/education/syllabusrequirements-appa)

**MISSED EXAM:** No make-up exams will be given, but you may be excused from an exam in special cases (detailed below). In these cases, the missed exam score will be replaced by a scaled score of the final exam.

You may be excused from taking an exam due to jury duty, subpoenas, military service, religious holidays, and participation in school sports events only if the instructor is notified two weeks in advance, and the required documentation is provided. You may also be excused in case of serious illness (as verified by a doctor's note) or death in the immediate family (be prepared to verify) if the instructor is notified within 24 hours after the exam. See [https://policy.umn.edu/education/makeupwork](https://policy.umn.edu/education/makeupwork) for a list of legitimate absences.

**EXAM REGRADE:** All exam regrade requests should be made to the instructor within 7 days of your exam grade notification. You may make an official request by email to the instructor. If you do not receive a response within 48 h, then please email again.

**ACCOMMODATIONS:** The University of Minnesota views disability as an important aspect of diversity, and is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations. See [https://diversity.umn.edu/disability/](https://diversity.umn.edu/disability/) or email drc@umn.edu.

- If you have, or think you have, a disability in any area such as, mental health, attention, chronic health, sensory, or physical, please contact the DRC office on your campus (UM Twin Cities - 612.626.1333) to arrange a confidential discussion regarding equitable access and reasonable accommodations.
- Students with short-term disabilities, such as a broken arm, can often work with instructors to minimize classroom barriers. In situations where additional assistance is needed, students should contact the DRC as noted above.
- If you are registered with the DRC and have a disability accommodation letter dated for this semester or this year, please contact your instructor early in the semester to review how the accommodations will be applied in the course.
- If you are registered with the DRC and have questions or concerns about your accommodations please contact your (access consultant/disability specialist).

**MENTAL HEALTH & STRESS MANAGEMENT:** As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: [http://www.mentalhealth.umn.edu](http://www.mentalhealth.umn.edu).

**INCOMPLETE GRADE:** A student may request an Incomplete grade only when (a) there is a University sanctioned excuse for missing the final exam and (b) the student is passing the course based on all other graded components. Assignment of an I requires that the instructor and student sign a contract, available in the Departmental undergraduate office, stipulating the procedure by which the I grade will be made up (e.g., taking a final exam from another instructor in the next semester). Failure to successfully complete the procedure outlined in the contract will result in the I being administratively changed by the University Registrar to an F or N (depending on the grade base) one calendar year from the end of the semester for which the I grade was granted. Note that the University has policies already in place to permit students called to military service, or unexpectedly disabled by major medical issues, to petition for withdrawal (and potential full or partial tuition remission) without prejudice.

**SCHOLASTIC DISHONESTY:** The U of M Student Conduct Code defines scholastic dishonesty as: “plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.” A student responsible for scholastic dishonesty can be assigned a penalty up to and including an "F" or "N" for the course.