



Chem 453 Advanced Inorganic Chemistry

Units: 4

Spring 2021—MWF—Time: 10-11 am

Location: Zoom

Instructor: Professor Megan Fieser

Office: SGM 218 (in 216 Suite)/ Zoom

Office Hours: TBD (based on students' availability)

Contact Info: Email: fieser@usc.edu

Timeline for replying to emails: within 48 hours

Teaching Assistant: Zach Wood

Office: SGM 201/ Zoom

Office Hours: TBD (based on students' availability)

Contact Info: Email: woodz@usc.edu

Course Description

Chem 453 is an advanced course in Inorganic Chemistry. The intent of this course is to give you a comprehensive picture of Inorganic Chemistry. The course will start with strategies to understand atomic structure, theory of bonding and molecular structure. The second half of the course will discuss crystal field theory and physical properties and reactivity of coordination compounds.

Learning Objectives

By the end of this course we hope you will have strategies to analyze a molecular inorganic molecule, and be able to make predictions of how they may be characterized or how they may react.

Topic Breakdown

- 1) Intro to Inorganic Chemistry (Ch 1 & 2)
- 2) Lewis Dot Structures and VSEPR (Ch 3)
- 3) Symmetry and Group Theory (Ch 4)
- 4) MO Theory (Ch 5)
- 5) Acid-Base and Donor-Acceptor Chemistry (Ch 6)
- 6) Coordination Chemistry (Ch 9-12)
- 7) Organometallic Chemistry (Ch 13 & 14)
- 8) Solid State Chemistry (Ch 7) (If there is time)

Prerequisite(s): 1 from (Chem 105B, 108 or 115B) and 1 from (Chem 322A or 325A)

Course Notes

You will definitely learn this material better if you come to class, and even more if you actively participate during lecture and all activities. That being said, as long as students might need to stay home with COVID, the recorded lectures will be posted on Blackboard. All assignments and keys will be made available on Blackboard.

Required Readings and Supplementary Materials

Textbook: Miessler & Tarr, "Inorganic Chemistry" (5th Edition)

Description and Assessment of Assignments

- You will have approximately 10-12 homework assignments that will be compatible with the content discussed in lecture. These will be due on Wednesdays at 10 am (via email to fieser@usc.edu and woodz@usc.edu).
- There will be three **independent** midterm exams on approximately Feb 11, March 25 and April 29.
- A "Picture a Chemist" assignment will be due midway through the semester (due March 4), and will be completed individually or in pairs.
- Finally, the Final Exam will be a virtual presentation, done in pairs, on Monday, May 9 (8-10 am).

Grading Breakdown

Assessment Tool (assignments)	% of Grade
Homework	10
Midterms (3)	60
Picture a Chemist	10
Final	20
TOTAL	100

Assignment Submission Policy

All assignments will be turned in via email by the deadline.

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.