

Point Loma Nazarene University
Department of Chemistry

CHE468 – Advanced Inorganic Chemistry II
Spring Term, 2016

MWF, 12:15 – 1:20 pm in LA 2

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Office hours: MW, 1:15 – 2:30 pm; Th, 1:30 – 3:30 pm

Rohr Science 302C
(619) 849-3251

Prerequisite

Completion or enrollment in CHE466 is required.

Course Description

The principles of inorganic chemistry, including symmetry, atomic and molecular structure, bonding theories, energetics, kinetics, and spectroscopy, are developed and applied to a range of inorganic compounds.

Course Objectives

At the completion of this course, students will be able to:

- predict and explain electronic configurations, periodic trends, and structures of simple main-group compounds.
- assign point groups for molecules and ions, and use group theory to build qualitative molecular orbital diagrams and identify Raman and IR active modes.
- apply acid-base and donor-acceptor principles to understand reactivity of inorganic compounds.
- know the fundamentals of coordination chemistry, including nomenclature, isomerism, ligand field theory, molecular orbitals, ligands, and electronic spectroscopy.

Textbook

Inorganic Chemistry, Miessler, Fischer, and Tarr, 5th edition, Pearson, 2014.

Lecture Materials

Lecture materials and other useful information will be available on Canvas.

Presentation

Each student will deliver a 10–15 minute presentation discussing one of the prominent inorganic chemists interviewed for the *Voice of Inorganic Chemistry* program. The interviews are available at <http://pubs.acs.org/page/inocaj/multimedia/voices.html>. More details will be made available during class regarding this assignment.

Problem Sets and Quizzes

Problem sets are due at the beginning of class on the day indicated on the assignment. No late work will be accepted. Quizzes will be given during class time. Alternate arrangements will be made for students with valid excused absences.

Grading

The final grade will be determined as follows:

Problem Sets & Quizzes	20%
Presentation	10%
In-Class Activities	10%
Midterm Exam	25%
Final Exam	35%

Letter grades will be determined at the end of the semester.

OTHER MATTERS:

Student Privacy

Point Loma Nazarene University adheres to the provisions of the student privacy act. Following FERPA guidelines, grades in this class will be communicated to students on an individual basis. However, exams will be returned in class in such a way that scores are not visible. All other graded works will be returned in your lab section. If you are not comfortable with this procedure, please see the instructor to make special arrangements. This request must be made during the first two weeks of the course.

ACADEMIC HONESTY⊕

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

ACADEMIC ACCOMMODATIONS⊕

If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. See [Disability Resource Center](#) for additional information.

ATTENDANCE AND PARTICIPATION⊕

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See [Academic Policies](#) in the Undergraduate Academic Catalog.

Schedule

Date	Topic	Reading	Speaker
March 2 (W)	Introduction & Atomic Structure	Ch. 1 & 2	---
March 4 (F)	Atomic Structure	Ch. 2	---
March 7 – 11	Spring Break		---
March 14 (M)	Simple Bonding Theory	Ch. 3	---
March 16 (W)	Simple Bonding Theory	Ch. 3	---
March 18 (F)	Symmetry and Group Theory	Ch. 4	---
March 21 (M)	Symmetry and Group Theory	Ch. 4	---
March 23 (W)	Symmetry and Group Theory	Ch. 4	---
March 24 – 28	Easter Recess		
March 30 (W)	Symmetry and Group Theory & Molecular Orbitals	Ch. 4 & 5	1
April 1 (F)	Molecular Orbitals	Ch. 5	2
April 4 (M)	Molecular Orbitals	Ch. 5	3
April 6 (W)	Molecular Orbitals	Ch. 5	4
April 8 (F)	Molecular Orbitals & Review	Ch. 5	---
April 11 (M)	Midterm Exam (Ch. 1 – 5)		---
April 13 (W)	Coordination Chemistry: Structures & Isomers	Ch. 9	5
April 15 (F)	Coordination Chemistry: Structures & Isomers	Ch. 9	6
April 18 (M)	Coordination Chemistry: Bonding	Ch. 10	7
April 20 (W)	Coordination Chemistry: Bonding	Ch. 10	8
April 22 (F)	Coordination Chemistry: Electronic Spectra	Ch. 11	9
April 25 (M)	Coordination Chemistry: Electronic Spectra	Ch. 11	10
April 27 (W)	Coordination Chemistry: Reactions & Mechanisms	Ch. 12	---
April 29 (F)	Coordination Chemistry: Reactions & Mechanisms	Ch. 12	---
May 4 (W)	Final Exam (10:30 – 1:00 pm)		