

Chemistry 520A

Inorganic Chemistry

Fall 2014

Professor Cole
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Class Hours MWF 10:00 - 10:50 AM, GMCS-314
Office Hours Mon/Wed 11-12 PM (first half of semester)
and by appointment

And

Professor Grotjahn
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Office Hours Mon/Wed 11 -12 PM (second half of semester)
and by appointment

Text: "Concepts and Models in Inorganic Chemistry" Third Edition, by Douglas McDaniel and Alexander.

This dual level course covers the nature of the chemical bond and advanced systematic study of representative and transition elements and their compounds.

Prerequisite is Chemistry 410A.

Topics:

Chapter 2 Review of Quantum Mechanics

Chapter 3 Simple Bonding Theory

Chapter 4 Symmetry

Chapter 5 Molecular Orbital Theory and Applications to Group Theory

Chapter 9 Coordination Chemistry I: Structures

Chapter 10 Coordination Chemistry II: Bonding

Chapter 11 Coordination Chemistry III: Spectroscopy

Chapter 7 The Crystalline Solid State

TBA?? General Principles of Bioinorganic Chemistry/Reaction Mechanisms/Organometallic Chemistry

Expected Student Learning Outcomes:

1. Develop a basic understanding of structure, symmetry and bonding of atoms, simple molecules as well as covalent and ionic solids.
2. Understand aspects of reactivity for acid/base, oxidation and reduction reactions.
3. Use spectroscopy to predict structures of compounds.

4. Understand and predict the behavior of elements from their position in the periodic table.
5. Understand and predict the unique properties of transition metal complexes.

The hour exams count 30% (100 pts) each and the final about 40% (130 pts).

STUDENT DISABILITY RESOURCES:

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at [\(619\) 594-6473](tel:6195946473). To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.

Other useful (possibly) information:

1. Since the prerequisite for this course is Chem 410A (P-Chem) we expect that you will know this material. Chapters 1 and 2 in your text are examples of material with which you should be familiar and which we will not cover explicitly. If you are unfamiliar with, or have forgotten this knowledge, we recommend you read Chap. 1 and 2 and/or your P-Chem text. Other areas, which I expect you will at least be partially familiar with, are the chapters on covalent bonding and M.O. Theory. Note also that while previous catalogs stated “credit or concurrent registration in Chemistry 410A” as a prerequisite for this course, concurrent registration is in fact no longer sufficient. **You must have COMPLETED Chemistry 410A with a passing grade. Over 80% of those taking this class and 410A concurrently fail; therefore the p-chem prerequisite is strictly enforced!**
2. You will find that we do not lecture directly out of your text. It is just one of the varieties of source materials that we use. Thus, the exams will not necessarily be based on only textual materials, i.e. your notes are important, read them! It should also be obvious that regular attendance in class will be important, although we do not take role of any kind. It is your money! You may find it helpful to do the problems at the end of each chapter; however, we will not assign or collect these. Copies of old exams will be distributed to you prior to examination dates to give you an idea of what to expect (to be forewarned is to be forearmed).
3. Chemistry 520A is truly a senior chemistry capstone class, since, although we concentrate on inorganic compounds, we bring in advanced material from analytical, physical and organic as well. Most students find this class one of the two most challenging of their career at SDSU (the other being P-Chem). Therefore do not get behind or you will never catch up. We cover lots of material and move rapidly at times. GOOD LUCK!