CH 402, H402, 602

Inorganic Chemistry **8/20/03**

Fall 2003, 158 Hunter

Instructor:	Professor Shiou-Jyh Hwu
Credit:	3 hours (M. W. F. 8:00 ~ 8:50)
Text:	"Inorganic Chemistry, Principles of Structure and Reactivity" by J. E. Huheey, E. A. Keiter, R. L. Keiter, 4th ed., Harper Collins, 1993
Office Hours:	Immediately after the class or by appointment Office: 477 Hunter (x-5031; shwu@clemson.edu); Labs: 301/405/407 Hunter
Attendance Policy:	No attendance policy will be enforced. Regular and punctual attendance, however, is strongly recommended. Students are dismissed in the absence of instructor 15 minutes after the class scheduled to start.
Catalogue Description:	Basic principles of inorganic chemistry are discussed with special emphasis on atomic structure, chemical bonding, solid state, coordination chemistry, organometallic chemistry and acid-base theories. The chemistry of certain selected elements is treated. *Preq*: CH331, 332
Course Objective:	To gain fundamental knowledge in structure and bonding of inorganic compounds, and principles that are most useful for predicting and explaining the common chemical reactions.
Grading:	There will be three mid-term exams and one final exam. Each of the mid-terms is worth 20% of the semester's grade and the final is worth 40%. Each mid-term will cover only the subjects covered in the preceding lectures. The final exam will be comprehensive over the entire semester's material. Periodically homework problems (approximately ten sets) will be assigned. No homework will be collected for grading, but answer keys will be posted. For H402 and 602 students, a term paper (limited to ten double-spaced typewritten pages, including figures and references) is required. It will be due on Friday, November 28, 2003. The term paper (see below for the suggested topics) is worth 20% of the normalized grade. Grading scale - A: 100-87, B: 86-72, C: 71-58, D: 57-50, F: <50

Suggested Topics for Term Papers in Inorganic Chemistry

Cluster Chemistry	Alkoxide Chemistry	Zeolites
Non-stoichiometric Oxides	Metalloporphrins	Subhalides
Intercalation Compounds	Rare-Earth Phosphors	Zintl Ions
Metallic Hydrogen	Transition Metal Nitrides	Inorganic Polymers
Magnetic Materials	New Superconducting Materials	NLO Materials

Open-framework (microporous and mesoporous) compounds (*e.g.*, MCM-41)

Sandwich Compounds (Ferrocene, Titanocene, Dibenzene Chromium, etc.)

Nano particles, nanostructured inorganic materials

Note: The selected topic for the term paper is due on October 31, 2003.

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Reference books for this course:

"Basic Inorganic Chemistry", F. A. Cotton, G. Wilkinson, P. L. Gaus; 2nd ed., Wiley, N.Y., 1987.

"Advanced Inorganic Chemistry", F. A. Cotton, G. Wilkinson; 5th ed., Wiley, N.Y., 1988.

"Inorganic Chemistry", D. E. Shriver, P. W. Atkins, C. H. Langford; 2nd ed., Freeman, N. Y., 1994.

The following is a tentative list of subjects for the semester. Additional references for each section will be given in class where appropriate.

Chapter	Topic
1	Survey of Inorganic Chemistry
2	The Structure of the Atom
3	Symmetry and Point Groups (p. 46-59)
4	Bonding Models in Inorganic Chemistry: 1. Ionic Compounds
EXAM I	**(Wednesday, 9/17; in class)**
5	Bonding Models in Inorganic Chemistry: 2. The Covalent Bond (p. 138-175)
7	Band Theory of Solids (p.269-276)
6	The Structure and Reactivity of Molecules
10	Soft Chemistry - Electrochemistry (p. 378-382)
EXAM II	**(Friday, 10/17; in class)**
11	Coordination Chemistry: Bonding, Spectra, and Magnetism
12	Coordination Chemistry: Structure
13	Coordination Chemistry: Reactions, Kinetics, and Mechanisms
14	Some descriptive Chemistry of the Metals
EXAM III	**(Monday, 11/17; in class)**
15	Organometallic Chemistry
16	Inorganic Chains, Rings, Cages, and Clusters
FINAL	**(Friday, 12/12; 8:00-11:00am)** Exemption from final upon receiving A in all three mid-term exams.

The Official Statement on "Academic Integrity"

"As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form."