

Chemistry 242

Inorganic Chemistry Laboratory

Spring 2013

Syllabus

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Description

This course will introduce experimental methods used by inorganic chemists to synthesize and analyze important classes of inorganic compounds. Synthetic methods will for the most part mirror those used in organic chemistry, with some variations. Methods of analysis involve measurement of electronic (UV-VIS) and vibrational (IR) spectra, electrochemical voltammetry, and magnetic susceptibility.

Materials

Experiments will be posted on the course website prior to the experiment.

Lab Notebook.

Approved Laboratory Goggles

Schedule of Experiments

Week	Download	Topics
Jan 21-25		Donor-Acceptor Complexes of Iodine
Jan 28-Feb 1		Synthesis of Coordination Compounds of Cobalt (I)
Feb 4-8		Synthesis of Coordination Compounds of Cobalt (II)
Feb 11-15		Determining a Complex Formula using Job's Method of Continuous Variation
Feb 18-22		Break
Feb 25-Mar 1		Voltammetric Analysis of bipyridyl and phenanthroline compounds
Mar 4-8		Analysis of Ancient Coins by ICP Atomic Emission
Mar 11-15		Preparation of a Magnetic Ferrofluid
Mar 18-22		Analysis of Metal Carbonyl Structure using IR and Symmetry; Photochemical Reactions
Mar 25-29		Break
Apr 1-5		Photophysics of Ru(bpy) ₃ ²⁺
Apr 8-12		Synthesis of Arene Complexes of Ruthenium
Apr 15-19		Analysis of Redox Stability of Arene Complexes of Ruthenium
Apr 22-26		Analysis of Magnetic Properties of Metal Complexes
Apr 29-May 8		Analysis of Pi-Backbonding Using IR Spectroscopy

Department of Chemistry and Biochemistry

Policy on Course Attendance, Performance, Participation and Behavior

1. Students are expected to attend all scheduled course sessions and should be prepared by reading in advance any relevant material assigned or provided. Participation (defined by interacting with the instructor, working problems at the board, individually or in groups, using personal response "Clicker" systems and other mechanisms defined in the syllabus) is expected.
2. Students are reminded that instructors are not required to accept assignments submitted late, except in instances allowed according to College policies. College Policies as defined in the Student Code of Conduct apply to lecture, recitation and laboratory portions of all courses.
3. Laboratories are an integral part of education in chemistry courses. As a result, participation in all laboratories scheduled for a course is expected. Unless alternate activities are scheduled, students can expect that their laboratory section will meet each week, and failure to attend laboratories may lead to failure in the course.
4. The minimum acceptable grade for a chemistry course prerequisite is a C-. For example, a student with a D+ in General Chemistry I may not enroll in General Chemistry II. This standard applies to all Chemistry prerequisites for all Chemistry courses.
5. **The laboratory for a course must be passed**, normally by earning 60% of the available score or points for the laboratory, in order to pass the course. Exceptions may be noted in the course syllabus.
6. Students are expected to bring to laboratory the laboratory manual (or printout of the experiment), a laboratory notebook (if required), a calculator, ruler or other materials as specified by the instructor or in the syllabus.
7. Students are not allowed to work in the laboratory without direct faculty supervision.
8. Unless announced in advance, **SAFETY GOGGLES (WHICH PROVIDE A COMPLETE SEAL AROUND THE EYES AND ARE EQUIPPED WITH INDIRECT VENTS) ARE REQUIRED TO BE WORN AT ALL TIMES IN THE LABORATORY. STUDENTS ARE REQUIRED TO PROVIDE THEIR OWN SAFETY GOGGLES.**
9. Open-toed shoes (e.g. sandals, "Birkenstocks", flip-flops, etc), unrestrained long hair, excessively loose clothing and other items, which may be easily ignited or snag on apparatus are not allowed.
10. Food, drink, candy, cosmetics, tobacco products, etc. are not allowed in the laboratory.
11. Students are expected to be attentive to the material and any experiments and apparatus in the laboratory. The following must be turned off and stored away from the laboratory bench while in laboratories:
 - Portable music players (e.g. iPods, MP3 players and the like)
 - Cellular telephones, pagers, text messaging devices and the like
 - Other portable electronic devices as defined by the laboratory instructor
12. Horseplay, practical jokes, "goofing around" or interfering with other students' work is not allowed in the laboratory.
13. Students should not expect to be able to makeup missed laboratory sessions or experiments. If a makeup session is possible, it will be at the discretion of the laboratory instructor and will normally be during the same week as the missed laboratory section.
14. Students will not be permitted to work in any laboratory section other than that they are registered for unless they have the **written approval** of both their regular instructor AND the instructor in the section they wish to enter.

Course instructors may modify these guidelines as necessary to meet the requirements of individual courses or chemical specialties in consultation with the Department Chairperson. Students should expect to receive a copy of these guidelines in their course syllabus or be given a copy by the course instructor (either in paper form or by electronic mail).

Adopted by the Department of Chemistry & Biochemistry on 16-March-2009 and to be included in each course syllabus beginning in Fall 2009. Modification of Policy #4 approved on August 20, 2010.