

# Advanced Inorganic Chemistry Laboratory

## Fall 2016

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Office Hours: Mon. 10:40-11:30 am. and 1:55-3:50 pm., Fri. 10:40-11:30 am and 1:55-2:45 pm.,  
by appointment or drop in

Lab Experiment Handouts are available on the course website. [www.lasalle.edu/~prushan](http://www.lasalle.edu/~prushan)

The laboratory portion of the course counts are 25% of the total course grade. Note: In order to receive a passing grade for Advanced Inorganic Chemistry you MUST pass both the lecture and laboratory portions of the course!

Your grade is based on your written lab reports as well as your performance in the laboratory (techniques).

**Lab Reports and Notebooks:** All lab reports must be handed in the week (Thursday) following the completion of the experiment for peer review. NO LATE REPORTS WILL BE ACCEPTED. The lab reports should follow the general format of a research journal such as Inorganic Chemistry and should include the following sections:

Abstract – A brief description of the experiment and its results

Introduction – Outline in your own words the theory and background behind the experiment. Include any important chemical equations and structures relevant to the experiment. Be sure to cite references used. There is no prescribed length for this section, but conciseness is desirable, and your discussion should be sufficient to indicate that you understand the principles behind the experiment.

Experimental Section – Briefly outline the procedure used as well as any modifications made to the procedure behind the experiment. When a compound is synthesized indicate its yield. (See a copy of the journal for the formatting).

Results and Discussion – The results obtained (syntheses, spectra, electrochemistry) should be given as well as a discussion of the meaning of the results and how they relate to the objective of the lab experiment. Include sample calculations. When averaging is called for, a standard deviation should be listed as well as the mean.

NOTE: DOWNLOAD either Know-it-all, ISI draw or other molecular drawing software. Reactions and Schemes should be drawn with one of these programs.

Keep in mind that a lab report should communicate not only the quantitative results of the experiment but also the quality of your data and your understanding of the experiment. You must have a bound lab notebook. The lab notebook will contain the recording of ALL original data and experimental observations. Record your data the day of the experiment, not reproducing it in writing a week later from memory! Specific procedures, especially those modified from the procedures given in the lab manual should be described in the notebook. There will be no makeup labs for those who miss an experiment!

Eye protection must be used during the lab period. Hoods should be utilized for manipulations involving any potentially hazardous dusty or volatile compounds.

#### DEPARTMENTAL SUBMISSION POLICY

Students are required to write a laboratory report for each experiment performed. A printed hard copy of the laboratory report should be handed in one week after the completion of the laboratory experiment at the next scheduled laboratory period. Late laboratory reports will be penalized at a rate of 20 % during the first week the report is late and an additional 20 % for the second week that it is late. Reports will not be accepted more than 3 weeks after the date of completion. Students will not receive credit for laboratory reports that have not been submitted by this time.

### **Advanced Inorganic Chemistry Lab Experiments (Fall 2016)**

**NOTE: All experiments are two weeks.**

Experiment 1: Preparation and Properties of Hexamminechromium(III) Nitrate

Experiment 2: Synthesis of macrocyclic complexes of nickel(II)

Experiment 3: Bioinorganic Chemistry: synthesis and properties of an oxygen-carrying cobalt complex which models hemoglobin

Experiment 4: Studies of ligand field strengths of a series of chromium(III) complexes

Experiment 5: Tris-bipy complexes of Iron(II) and Ruthenium (II): Synthesis, Spectroscopy and Electrochemistry

Experiment 6: Reaction Rates in Transition Metal Complexes

Experiment 7: Synthesis and Characterization of a metal-arene complex:  
(Mesitylene)tricarbonylmolybdenum(0)