

Chemistry 3610L

Inorganic Chemistry Laboratory

Instructor

Dr. Leslie Murray (murray@chem.ufl.edu, CLB 412D, 392-0564)

Teaching Assistants

Amrita Basu Mullick (amullick@chem.ufl.edu, CLB 417)
Allison Garnsey (agarnsey@chem.ufl.edu, CLB 413)

Lab Times

Monday and Wednesday (6:15 to 9:10 pm)

Office Hours

By appointment (email to arrange)

Required Text

There is no required text for this course

Reserve/Resource Texts (*freely available through the UF library website portal*)

ACS Style Guide; 3rd ed.; Coghil and Garson

Advanced Inorganic Chemistry; 6th ed.; Cotton, Wilkinson, Murillo, Bochmann

Experimental Organic Chemistry; Mohrig, Hammond, Morrill and Neckers

Inorganic Chemistry; 3rd ed.; Miessler and Tarr

Inorganic Experiments; 2nd ed.; Woollins

Synthesis and Technique in Inorganic Chemistry: A Laboratory Manual; 3rd ed.; Girolami, Rauchfuss, Angelici

Structure Determination of Organic Compounds: Tables of Spectral Data; Pretsch, Bühlmann, Affolter

The Organometallic Chemistry of Transition Metals; 4th ed.; Crabtree

Grades

Written Lab reports	40%
Experimental Questions	20%
Oral Lab and Literature Report	20%
Lab notebook, technique, etc.	20%

Course grades will be assigned on a curve with the following percentages used for guidance:

100-93% = A; 92-88% = B⁺; 87-83% = B; 82-78% = C⁺; 77-73% = C; 72-68% = D⁺; 67-63% = D; 62-00% = F

Course Description. Students will perform experiments involving the synthesis, isolation, purification and characterization of a variety of inorganic compounds and report the findings in the format of an ACS style journal article. Characterization methods that will be employed include multinuclear NMR spectroscopy, UV/Visible spectroscopy, IR(infrared) spectroscopy, and electrochemical methods. As the course progresses, concepts relating to main group chemistry, transition metal chemistry, materials, bioinorganic chemistry, organometallics and molecular orbital theory will be developed.

The main objectives for this course are:

- 1. Learn new synthetic techniques specific to inorganic chemistry*
- 2. Learn common characterization techniques used in synthetic inorganic chemistry*
- 3. Learn new aspects of inorganic molecular reactivity and bonding*
- 4. Learn effective communication of scientific results, both written and oral*

Students will work in groups, performing different experiments each week. The lab will be open during the scheduled times but it may be necessary to come in some additional hours to complete unfinished characterization.

This course places more responsibility for the construction and execution of experiments directly on you, the students. The goal is to prepare you to work in an advanced laboratory and to perform independent research. As such, **you must read the entire lab protocol for a particular lab prior to that lab meeting.**

Students are required to look up the MSDS sheets for each reagent to determine any safety precautions and to familiarize yourselves with the reagents. Should any accidents occur, no matter how small, report the incident to one of the TAs immediately.

Experiments. See lab manual

Lab Reports. Lab reports will be prepared in the style of an article written in *Journal of American Chemical Society* (template available electronically at). The purpose of this exercise is for you to think about the material in a more detailed manner and to view the experiments as an aspect of creating new science. It is expected that these articles should be properly referenced and organized. In addition, you may find the ACS style guide useful for preparing your lab reports. Reaction and mechanisms must be drawn using the Chemdraw software package and the TAs will help you to obtain other experimental data in electronic versions. Lab reports and lab questions are to be each student's individual effort. Since the experiments are performed in groups, there will be some overlap of results; however, the rest of the article should be the work of the individual author. Because few students have had experience writing reports in this format, the first report will be graded S/U (a grade of "U" will require the student to write an additional report). The general rubric by which these reports will be graded is provided with the course information. Lab reports are due as indicated by the calendar included in the course information. A letter grade will be deducted from the total grade for each late submission without exception.

Lab Report Guidelines. The template for articles and the guidelines for authors can be found here: <http://pubs.acs.org/page/jacsat/submission/authors.html>. The most recent edition of the ACS Style Guide is on reference in Marsten. It's title and call number are "The ACS style guide : effective communication of scientific information." Reference number: QD8.5.A25 2006.

Attendance and Absence Policy. Attendance is expected; although, it is not used as part of student grade assessment. Whenever possible, the instructor should be notified prior to the absence. When this is not possible, the instructor should be notified as soon as possible. In general, acceptable reasons for absence from class include illness, serious family emergencies, special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligation, severe weather conditions, religious holidays and participation in official university activities such as music performances, athletic competition or debate. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) must be excused. Further information can be found in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/>).

Oral Exam. There will be two oral presentations near the end of the semester. For the first, each student will be assigned an experiment. The student will deliver a 10-15 minute powerpoint presentation (5-10 slides), which will be followed by, first, a 10-15 minute Q&A period on topics relating to the experiment, presentation or techniques, and a 5-minute period of feedback on the student's overall performance in the course. For the second presentation, students will select a topic from the literature, prepare, and deliver a 10-minute powerpoint presentation on that topic. Similar to the first presentation, this will be followed by a Q&A period.

Academic Honesty. Students are required to be honest in their coursework, may not use notes during quizzes or exams, and must properly cite all sources that they have consulted for their projects. Any act of academic dishonesty will be reported to the Dean of Students, and may result in failure of the assignment in question and/or the course. For University of Florida's honor code, see <http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php>.

Accommodations for Students with Disabilities. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Contact the Disability Resources Center (<http://www.dso.ufl.edu/drc/>) for information about available resources for students with disabilities.

Counseling and Mental Health Resources. Students facing difficulties completing the course or who are in need of counseling or urgent help should call or contact the on-campus Counseling and Wellness Center (352-392-1575; <http://www.counseling.ufl.edu/cwc/>).