

CHM 3610L – INORGANIC CHEMISTRY LABORATORY

SPRING 2024

INSTRUCTOR INFORMATION

Instructors	Email	Office Phone	Office Location
Chenjie Zeng	zeng@chem.ufl.edu	(352) 294-3447	SIS 329B
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GENERAL INFORMATION

MEETING TIMES

This course will meet **Thursdays (8:30 AM - 11:30 AM)** and **Fridays (8:30 AM - 10:25 AM)** in SFH (Scott Family Hall) 110. Our lab will be in rows 3F and 3E.

OFFICE HOURS

Office hours can be scheduled by appointment (email to schedule).

TEXTBOOK

Required Text: There is no required text for this course.

Reserve/Resource Texts (available through the UF library website portal <https://uflib.ufl.edu>):

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

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

Experimental Organic Chemistry; Mohrig, Hammond, Morrill and Neckers

Inorganic Chemistry; 5th ed.; Miessler and Tarr

Inorganic Experiments; 2nd ed.; Woollins

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 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 learning objectives for this course are:

- I) Learning new synthetic techniques specific to inorganic chemistry
- II) Learning common characterization techniques used in synthetic inorganic chemistry
- III) Learning new aspects of inorganic molecular reactivity and bonding

IV) Learning effective communication of scientific results, both written and oral

Students will work independently to conduct different experiments each week. The lab will be open during the scheduled times but it may be necessary to come in for some additional time to complete unfinished characterization. Access to additional time will be at the discretion of the TAs and the instructor and will not be permitted in cases where students have arrived unprepared for a lab exercise.

PRE-LAB RESEARCH

Pre-lab research and reports are important for you to understand what you are going to do in the lab, conduct the experiment safely, and finish it in time. **You must read the entire protocol for a particular lab prior to that lab meeting.** You also need to finish the pre-lab report and upload it to Canvas before the lab starts. Pre-lab reports can be recorded in the lab notebook and should include basic information about chemicals, chemical reactions, detailed protocol in steps, drawing of experiment apparatus, as well as characterization method for that particular experiment.

IN-LAB RECORDS

Accurate and detailed recording of experimental observations in the notebook is a critical step for scientific communication and potential discoveries. This lab course will help you to form a good habit of recording experiments in the lab notebook. All the observations and experimental details (such as weight/volume of chemicals, reaction temperatures, reaction times, color changes, etc.) should be recorded in the lab notebook in time. At the end of each lab period, TAs will check and sign your experiment records. You can upload your lab notes together with formal reports (see below) to Canvas.

POST-LAB FORMAL REPORTS

Lab reports will be prepared in the style of an article written in the *Journal of the American Chemical Society*. Your reports should be properly referenced and organized. The following separate sections are required in your reports: Abstract, Introduction, Experimental, Results, Discussion, Conclusion, and Reference. You are encouraged to use the *ACS style guide* for preparing your lab reports. Reactions and mechanisms must be drawn using the ChemDraw software package and the TAs will help you to obtain other experimental data in electronic versions. The written lab reports and answers to questions are to be each student's effort. 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.

FINAL ORAL LAB REPORT (FINAL PRESENTATION)

There will be one oral presentation near the end of the semester. 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 a 10-15 minute Q&A period on topics related to the experiment, presentation, and/or techniques used during the laboratory.

EXPERIMENTS

See the lab manual for details on each experiment.

REQUIRED MATERIALS

- Approved safety glasses/goggles and proper attire. You will be asked to leave the lab if not properly attired. There are NO make-ups for attire issues.
- You will require a suitable laboratory notebook. We recommend a standard composition notebook.

CHEMICAL AND SUPPLY FEES

\$50.00

SAFETY

GENERAL LAB SAFETY

This course places more responsibility for the execution of experiments on you, the students. **You must read the entire protocol for a particular lab and finish pre-lab report prior to that lab meeting.** Unprepared students will be asked to leave the lab until they are appropriately ready for that experiment. **Students are required to look up the MSDS sheets** for each reagent used to understand the hazards and precautions required to handle them. Should any accident occur, no matter how small, you are to report the incident to the TA or instructor immediately.

Again, approved safety glasses/goggles and proper attire are required to enter the lab. You will be asked to leave the lab if not properly attired. There are no make-ups for attire issues.

GRADES

ASSIGNMENTS

The following assignments will be administered during the course:

Assignment	Weight
Pre-lab research	20 %
In-lab records and performance	20 %
Post-lab formal report	20 %
Experimental questions	20 %
Final oral lab presentation	20 %

Course grades will be assigned according to UF policy:

A: 100-93%; A-: 92-88%; B+: 87-83%; B:82-78%; B-: 77-73%; C+: 72-68%; C: 67-63%; C-: 62-55%; D: 55-45%; E <45%

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

ATTENDANCE INFORMATION

LAB PERIOD

You are expected to attend lab during the lab period, and to leave the laboratory when the lab period ends. You may not arrive early and stay late to complete your laboratory activities. You will not be allowed to enter the lab if you are more than 15 minutes late. If you are more than 15 minutes late due to an extreme circumstance beyond your control, you may submit a request for an excused absence (see the absences policy below).

LAB ATTENDANCE

Attendance is critical for this lab course. It is essential that you be prepared and present for lab each time that it convenes. At the end of each lab period, TAs will sign your in-lab experiment record, which will serve as a record of your attendance. If you are not in attendance you will receive a score of 0 for your in-lab and post-lab reports.

ABSENCES

Excused absences are for extenuating circumstances only: documented illness, family emergencies, or university approved absences. Travel, non-emergency doctor or dentist appointments, or extracurricular activities do not justify an excused absence. Missing lab due to improper lab attire does not qualify for an excused absence. Students who miss a normal lab due to extenuating circumstances may submit a request for an excused absence within 7 days of the missed lab period. For students whose lab absences are approved, the in-lab and post-lab report will be excused and their grade will be determined based on the remaining assignments.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

UNIVERSITY POLICIES

SOFTWARE USE

All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking quizzes or exams. Accommodations are not retroactive; therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida. The following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.”

U MATTER, WE CARE

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care team can help connect students to the many other helping resources available including, but not limited to: Victim Advocates, Housing Staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

FEEDBACK

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

NETIQUETTE

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

GETTING HELP

For issues with or technical difficulties with Canvas, contact the UF Help Desk: <https://lss.at.ufl.edu/help.shtml>; (352)-392-HELP. Other resources are available at <http://www.distance.ufl.edu/getting-help> for Counseling and Wellness resources, disability resources, resources for handling student concerns and complaints, and library desk support.