

CHEM 531: Inorganic Chemistry Laboratory (Section 001) – 1 credit hour Spring 2021

Meeting Times:

Pre-lab Lecture: Online: Watch videos in Blackboard
Laboratory: R 2:00-4:50, Sims 310

Instructors:

Dr. Robin Lammi Dr. Jay Hanna
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Virtual Office Hours:

Dr. Lammi: MW 1:00 – 2:00 and by appointment, via [Zoom](#)
Dr. Hanna: M 3:00 – 4:30 and by appointment, via [Zoom](#)

Required Course Materials:

Textbook: *Synthesis and Technique in Inorganic Chemistry*, 3rd ed., Girolami et al.
Lab Notebook: Any permanently bound notebook (**no** spirals) with consecutively numbered pages
Safety Eyewear: Splash goggles (preferred) or safety glasses (Masks and face shields will be provided)
Calculator: Any scientific or graphing calculator

Course Goals:

Synthesis and characterization of inorganic compounds, including main-group, transition-metal and organometallic species

Student Learning Objectives:

- To learn synthesis and characterization techniques employed in all sub-fields of inorganic chemistry, including solid-state, main-group, coordination, organometallic, and bioinorganic disciplines
- To learn current, practical applications of the theoretical concepts discussed in Inorganic Chemistry lecture (CHEM 530)
- To write a review of scholarly literature related to experimental inorganic chemistry

Laboratory Safety:

You are expected to adhere to the safety policies outlined in the Chemistry Department's Chemical Hygiene Plan (Section I), available at <http://chem.winthrop.edu>, highlights of which will be discussed in class. Please alert an instructor promptly when questions or concerns arise. You'll be expected to wear a mask and lab coat, and observe social distancing while at all times in lab. Face shields will be provided when/if social distancing is not possible.

Preparation:

You are required to read the week's laboratory experiment, watch the pre-lab video, and complete the pre-lab quiz by 11:59 p.m. on the Wednesday before the Thursday lab period. (Pre-lab videos and quizzes will be available in Blackboard.)

Attendance:

Due to the need for social distancing, you'll be scheduled to complete the lab in shifts. You are expected to attend laboratory sessions in their entirety during your agreed-upon time slot. If you haven't completed the "Preparation" assignments above, or fail to attend laboratory at your agreed-upon time, you may not be permitted to complete that week's work, and you may receive a grade of "0" for that lab. Please notify an instructor in advance of any planned absences, health concerns, etc.

Assignments:

Pre-Lab Assignments:

There will be a brief pre-lab quiz (in Blackboard) each week. These are due by 11:59 p.m. on Wednesday; late assignments will be penalized 10% per hour.

Lab Reports:

You will be required to turn in some form of culminating assignment (i.e., "lab report") for each experiment; details will be provided in the pre-lab videos. In some cases, this will consist of a formal written report, comprising Abstract, Introduction, Experimental Methods, Results, Discussion, Conclusions, and References sections. In other instances, it may consist of informal answers to questions.

Assignments must be completed **individually**; the only **exception** to this is the group review article, for which each group will turn in one assignment. Reports are due on the dates indicated on the course schedule or as announced in the pre-lab videos. Late reports will be penalized 5% per day.

Group Assignment: Development of a Review Article:

This semester, our class will work from the chemical literature to develop a review article involving multinuclear NMR. Student groups will be responsible for preparing a document styled after an article from *Chemical Reviews*. Group Assignment due dates are indicated on the course schedule; specific assignment details will be available in Blackboard.

Additional Requirements for Graduate Credit:

A student wishing to earn graduate credit for this course must plan, complete, and report on one of the "Independent Study" exercises listed with a textbook experiment that the class is performing this semester. The student must choose and obtain instructors' approval for the selected "Independent Study" exercise no later than **March 1, 2021**. The formal written report on this activity is due no later than **April 26, 2021**, and will be worth up to 100 points.

Grading:

The assignments for this course and their respective point values are shown below.

Pre-lab Assignments	120 (12 x 10)
Lab Reports, Exp. 1-6	300 (6 x 50)
Group Review Article	130
Lab Notebook	50
Total	600 points

Course grades will be determined based on the total points earned. The following grading scale is guaranteed; grade cut-offs may be adjusted lower, depending on class performance:

A 93-100	A- 90-92	B+ 87-89	B 83-86	B- 80-82
C+ 77-79	C 73-76	C- 70-72	D 60-69	F <60

Students with Disabilities:

Winthrop University is committed to providing equal access to education for all students. If you have a disability (e.g., mental health concern, medical condition, learning disability, etc.) and you anticipate or experience academic barriers due to this condition, please contact the Office of Accessibility (OA) at 323-3290 or accessibility@winthrop.edu. Once you receive approval for accommodations through OA, please inform an instructor as soon as possible so that we may implement your accommodations in a timely manner.

Academic Integrity:

Any instances of academic misconduct will be dealt with as outlined in the Student Conduct Code, found in the *Student Handbook* (<https://www.winthrop.edu/studentconduct/winthrop-university-student-handbook.aspx>).

Syllabus Change Policy:

Changes to the policies listed here may be made at the instructors' discretion. You will be notified of any modifications.

Tentative Course Schedule (subject to change):

Lab Date	Experiments Performed (Textbook Experiment #)	Assignments Due
Jan. 14	Intro, Safety: Meet via Zoom	
Jan. 21	1. The Molecular Sieve Zeolite-X (#3)	
Jan. 28	1. continued;	
Feb. 4	2. The 1-2-3 Superconductor YBa₂Cu₃O₇ (#1)	Exp. 1 Report
Feb. 11	2. continued	
Feb. 18	3. Borane-Amine Adduct BH₃:NH₂C(CH₃)₃ (#4)	Exp. 2 Report
Feb. 25	3. continued	
Mar. 4	4. Metal-Arene Complex (#16)	Exp. 3 Report
Mar. 11	4. continued	Group Assignment #1
Mar. 18	Wellness Day – No Class	
Mar. 25	5. Amino Acid Complexes: Ni(glycinate)_n⁽²⁻ⁿ⁾⁺ (#22)	Exp. 4 Report
Apr. 1	5. continued	Group Assignment #2
Apr. 8	6. The Paramagnetic Complex Mn(acac)₃ (#12)	Exp. 5 Report
Apr. 15	6. continued	
Apr. 22	Work Day: Group Review Article	Exp. 6 Report
Apr. 28		Lab Notebook, Group Assignment #3