

CHEM 330: Introductory Inorganic Chemistry (Section 001) – 3 credit hours
Fall 2022

Class Meetings: TR 8:00 – 9:15, Sims 113B

Instructor: Dr. Robin Lammi

Contacting me: I aim to respond to electronic communication within 24 hrs (M-F) or 48 hrs (weekends).

E-mail: lammir@winthrop.edu "Ask the Instructor" Discussion Board in Blackboard

Office hours (Sims 313A): M 1:30 – 3 PM; W 10 – 11:30 AM; and by appointment; or just stop by.

Required Course Materials:

Textbook: *Inorganic Chemistry*, 7th ed., Weller *et al.* (any format – paperback, eBook, etc.)

Calculator: Any scientific or graphing calculator (but **not** your cell phone/tablet, etc.)

Technology: Blackboard access and submission of electronic assignments as needed

Supplemental Materials: General Chemistry texts, class notes

This course will build on your earlier exposure to inorganic chemistry, refining knowledge gained in General Chemistry. As such, your General Chemistry materials and/or any other Gen. Chem. texts, such as the online sources at [Chemistry LibreTexts](#) will be helpful resources for review. (If you have completed additional chemistry coursework, you may find those texts helpful, too.)

Course Goals and Student Learning Outcomes:

Since it encompasses all of the known elements, inorganic chemistry could reasonably be considered “the chemistry of everything”! Building on foundations from General Chemistry, this course introduces students to the sub-disciplines of this very diverse field while emphasizing the overarching themes of structure, bonding, reactivity, and periodic trends that allow chemists to predict and explain scientific observations.

At the conclusion of this course, the successful student will be able to:

1. Predict, describe, and graphically depict chemical structure and bonding for any given element or compound.
2. Broadly explain the chemistry of the elements, including characteristic properties of groups, behavior of transition metals, and trends in properties across the periodic table.
3. Predict and explain chemical reactivity for any given substance, including acid-base and oxidation-reduction chemistry.
4. Give examples of practical applications of and ongoing research in inorganic chemistry, in areas including materials science, nanotechnology, industrial chemistry, catalysis, and bioinorganic chemistry.

Outline of Topics: Eight “modules” of traditional inorganic content, plus a class project focusing on current research

1. Electronic Structure & Properties of Stable Isotopes
2. Introduction to Nuclear Chemistry
3. Structure & Bonding in Molecular Compounds
4. Structure & Bonding in Metals & Ionic Compounds; Introduction to Nanomaterials
5. Introduction to Main Group Chemistry
6. Introduction to Transition Metal Coordination Chemistry
7. Acid – Base Chemistry
8. Oxidation – Reduction Chemistry

Class Project: Nanomaterials in Medicine (NIM)

Course Assignments and Activities:

Class Preparation and Participation:

In order for us to achieve the course goals, it is essential that you **arrive prepared and participate actively** in our class meetings. The traditional material we will cover builds on content you have learned – and recalled or reviewed – from General Chemistry to advance your knowledge and understanding; the NIM class project will require each of us to keep up with assignments and contribute actively to team goals.

Graded Homework:

Working and re-working problems is the best way to learn chemistry. I will assign homework problems from each textbook chapter (as well as some non-textbook problems) that will be turned in for grading. I strongly suggest that you begin working on the homework as soon as we have covered the relevant material in class, so that you have the earliest indication of questions or difficulties to be addressed. I encourage you to work with your classmates and seek help with any topics you find difficult. **Please start early and ask lots of questions! An in-depth understanding of the homework is by far the best predictor of success on exams.**

Chemistry of the (Main-Group) Elements:

As an introduction to main-group chemistry (Module 5), each pair of students will choose one of the main groups (1A – 8A) **and** a specific element in that group on which to prepare a 5-7-minute presentation. Presenters will also write 3-5 potential exam questions about their elements and groups. More details will be provided in class.

Midterm Exams and Mini-Exam:

Two midterm exams and a shorter “mini-exam” will be given in class on the dates below.

Exam I: Thurs., Sept. 15

Exam II: Tues., Oct. 25

(Mini-)Exam III: Tues., Nov. 22

If you know ahead of time that you will be unable to take an exam at the scheduled time, you **must** make arrangements **in advance** to reschedule. If you miss a scheduled exam without prior approval and do not provide a written doctor’s excuse or proof of other personal or family crisis, you will earn a zero for that exam.

Final Exam: 8 a.m. Saturday, Dec. 10

Nanomaterials in Medicine (NIM) Class Project: We will work individually, in small groups, and as an entire class to investigate current research into therapeutic and/or preventive applications of nanomaterials in medicine. Our overall effort will be guided by a series of individual and small-group assignments, culminating in a series of brief presentations and one final class report.

Grading:

The assignments for this course and their respective point values are shown below. Course grades will be determined based on the percentage of total points earned.

Class Preparation & Participation	100
Homework/Assignments	200
Chem. of the Elements Presentation	75
Mini-Exam	75
Midterm Exams (2 x 125)	250
Final Exam	125
<u>NIM Project (total)</u>	<u>175</u>
Total	1000 points

The guaranteed grading scale is shown below; if necessary, it may be adjusted lower to reflect class performance.

A 92-100	A- 88-91	B+ 85-87	B 79-84	B- 76-78
C+ 72-75	C 65-71	D 56-64	F <56	

Getting (and Giving) Help:

Some of the material in this course will likely be difficult for you – and for all of us! Please reach out to your classmates and me frequently for help, and stand ready to offer assistance whenever you can. We will all learn more together.

Attendance:

You are expected to attend all scheduled class meetings in their entirety and are responsible for all course material and assignments, regardless of absences. Unexcused absences and/or tardiness will also impact the class-participation component of your grade.

Technology:

While we will meet in person this semester, we will still rely on technology to complete and submit a number of assignments. Please be sure that you have the necessary internet access, hardware, and software for successful participation (e.g., computer with up-to-date browser, webcam and microphone, Microsoft Office) and remember that technological challenges do not excuse you from completing course requirements in a timely manner.

Blackboard and E-mail:

Please be sure to **log into Blackboard at least several times a week** to keep up with announcements, discussion boards, and other course materials that will be added throughout the semester. Please also **check your Winthrop e-mail daily** to keep in contact with classmates and me.

COVID-19 Statement:

The health and safety of the campus community is Winthrop's top priority. As socially responsible members of this community, everyone is expected to engage in daily health self-monitoring and to stay home (residence hall or off-campus housing) from on-campus class, work, or activities if they begin experiencing any COVID-related symptoms. Please do not attend class if you have a fever or any signs of the COVID virus; do not attend class if your roommate or someone you have close contact with acquires the virus; and be respectful of others' desire to remain COVID-free. Masking on campus remains optional but strongly encouraged, especially in indoor settings around others. Use the Patient Portal COVID-19 form to report illness or exposure and upload the positive test, if relevant. Students who violate WU guidelines will be asked to comply. Continued failure to comply may result in referral to the Dean of Students Office as a student conduct violation.

COVID-Related Absences:

Students should contact Health Services regarding a positive test, close contact, or enhanced COVID-like symptoms. Any student who has tested positive, has COVID-like symptoms, or has close contact with someone who has COVID, must contact Health Services. Students should log in to the [Patient Portal](#) to complete a C19 form and upload the positive test, if relevant. Health Services will communicate with the student on what steps to take next, and if need be, the Dean of Students Office will receive absence verification for required isolation and quarantine. Students who verify their absences through the Dean of Students Office often minimize any academic impact caused by missed class time. Students retain a responsibility to communicate with instructors regarding missed work, and complete assignments in a timely manner as they are able. Regular communication with faculty is expected so that student progress in the course is not negatively impacted. Health Services will only provide dates of absence, not medical information. Please note, residential students who test positive must follow their personal COVID Quarantine and Isolation Plans.

In-person classes generally will not have a remote option; students should not expect to have remote access to the class lecture or discussion, even in the case of absence.

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 me as soon as possible, so that we may implement your accommodations in a timely manner.

Academic Integrity:

As noted in the Student Conduct Code: "Responsibility for good conduct rests with students as adult individuals." The policy on student academic misconduct is outlined in the Student Conduct Code Academic Misconduct Policy in the [online student handbook](#).

Syllabus Change Policy:

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