

UNIVERSITY OF NORTH GEORGIA-DAHLONEGA CAMPUS  
DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY  
CHEMISTRY 1151K - Section DB

Fall 2023

Lecture: TR 9:30 - 10:45 am

Laboratories: R 11 - 12:50 pm

Rogers Hall, Room 307

ACCESSIBILITY STATEMENT: If you need this document in an alternate format for accessibility purposes (e.g. Braille, large print, audio, etc.), please contact Ashley Garrett at [Ashley.Garrett@ung.edu](mailto:Ashley.Garrett@ung.edu) or call (706)864-1505.

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Office Phone # 706 867-1711

Office Hours:

M/T/R: 10am – 12pm AND 1 - 2pm

Friday: 1 – 2 pm

OR by appointment only

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## COURSE DESCRIPTION

This is the first half of a year-long chemistry course designed for allied health profession majors. This semester we will focus on inorganic chemistry as it applies to health care professionals. There will be a significant amount of math and memorization. We will cover inorganic chemistry nomenclature, reactions, molecular structures, and various applications in the healthcare field.

This is a K course, which means you have lectures and laboratories with me. Topics covered in lecture will be applied in lab and vice-versa. Objectives are many but notably we will focus on learning and practicing safe laboratory conduct and providing laboratory experiences that pertain to central topics in chemistry that are addressed in the lecture component of this class -i.e., physical properties, moles, solutions- with an emphasis on data and results analyses.

Expected Laboratory Performance by Students:

- Safely perform basic scientific experiments
  - Carefully and fully record, analyze and interpret data.
  - Apply and develop concepts addressed in the lecture class (Chem 1151)
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After this course, students should be able to:

1. Understanding the classifications, states and their properties of matter. Explain the scientific method.
2. Essential: Writing and Performing Unit Conversions. Writing the names and abbreviations for the metric and SI units
3. Determine the number of significant figures a number has and how to adjust significant figures in calculated answers.
4. Essential: Describe the structure of the atoms and elements
5. Essential: Naming chemical compounds (ionic and covalent)
6. Essential: Balance and identify different types of chemical reactions
7. Understand Avogadro's number and use it in chemistry calculations.
8. Identify a limiting reagent and calculate the amount of product formed from the limiting reagent. Calculate percent yield.
9. Essential: Describe the kinetic molecular theory of gases and the units of measuring gases
10. Understand and Apply Boyle's Law, Charles's Law, Gay-Lussac's Law, Avogadro's Law, and Dalton's Law
11. Use the combined and ideal gas law to perform calculations in chemical reactions.
12. Understanding energy and energy transfer
13. Describe alpha, beta, positron, and gamma radiation. Write balanced nuclear equations showing mass numbers and atomic numbers.
14. Perform calculations of half-lives of radioisotopes.
15. Describe the energy levels, sublevels and orbitals in an atom and be able to draw electron orbital diagrams.
16. Use the periodic table to identify trend in various properties. Use the electronegativity trend to determine if a chemical bond is polar or non-polar.
17. Predict and describe intermolecular forces and how they correlate to the properties of solids and liquids.
18. Calculate concentrations of solutes in solutions and the dilution of a solution. Describe colligative properties of solutions.
19. Describe chemical equilibrium. Use equilibrium constants in calculations and apply Le Chatelier's principle.
20. Define pH. Describe buffer systems. Write expressions for the dissociation constant of a weak acid or weak base.

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## REQUIRED RESOURCES

**1. Textbook & Homework:** Use this link to purchase online access to the book and homework.

<https://students.flatworldknowledge.com/course/2605486>. This material is required. You have options to download or purchase a hard copy version of the book. I recommend trying the online book first. I found it easy to chat with customer support inside my FlatWorld account or visit <https://support.flatworldknowledge.com/en/articles/5268516-customer-support-hours>

**2. Scientific calculator** with log and scientific notation. For the final exam, programmable graphing calculators are not allowed. Here is a calculator I like from Walmart for just around \$10: <https://www.walmart.com/ip/Texas-Instruments-TI-30XA-Student-Scientific-Calculator/1043441?athbdg=L1103&from=searchResults>

**3. Safety Glasses or Goggles:** These can be purchased at many retail locations including our bookstore. <https://www.walmart.com/ip/Hyper-Tough-Clear-Safety-Glasses-with-Z87-1-Poly-Carbonate-Lens-Fit-Over-HTS-690460/558336181?athbdg=L1200&from=/search>

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## Grades

### Your grade is composed of 2 parts:

Lecture	65%
Laboratory Experiments	35%

#### PART I – LECTURE – 65% of your overall grade

Activity	What	Weight
Exams	3 exams	40%
Activities	In class work / Homework / Quizzes	40%
Nursing Case Study		10%
Final Exam	Standard American Chemical Society Exam	10%
		Average x 65%

#### PART II – LABORATORY – 35% of your overall grade

LAB	Topics *
1	Laboratory Safety and Procedures
2	Measurements and Calculations
3	Metrics and Graphing
4	Density of a Solid
5	The Law of Definite Proportions
6	Moles- Reaction of a Mystery Metal with Hydrochloric Acid
7	Goblins & Goblets
8	Metals-Determination of Specific Heat
9	The Gas Laws-Charles' Law
10	Physical Separation of a Mixture
11	Solutions, Doses and Potions
	Average x 35%
	*All labs worth 100 points and have the same weight.

The total number of assignments may vary, but the grade percentage of each category remains fixed. Student progress will be reported in the D2L gradebook.

#### *Grading Scale*

A:  $\geq 90\%$

B:  $\geq 80\%$

C:  $\geq 70\%$

D:  $\geq 60\%$

F: below 60%

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## ATTENDANCE AND PARTICIPATION- POWERPOINTS, ELECTRONICS

Class attendance is mandatory and generally considered useful, too, as the depth and scope of lectures may often go beyond what is presented in the textbook. To assist you in lecture, PowerPoints for each chapter will be made available on D2L. Students are responsible for all material assigned and discussed in class.

Electronics - computers, cell phones, tablets, etc. - are to be used only for educational purposes. Texting and working on assignments for this class or others is not appropriate behavior nor typically well received.

Lab attendance is also mandatory. You must attend the lab section for which you have registered unless prior arrangements have been made. Any unexcused absences from the laboratory will result in a zero for that lab.

The general format for labs is that they will have a prelab assignment that will be online and will be due prior to attending the lab itself. Then, the postlab assignment will be due the week following the completion of the experiment.

If you are ill or have a serious personal problem, please contact the instructor prior to the lab (or as soon as possible after the fact) to arrange for the possibility of attending another lab section or to schedule a make-up lab. Please refer to the UNG Student Handbook for attendance and class withdrawal policies.

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## Laboratory

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This is a K course that consists of both lecture and laboratory component. The topics covered in the lecture will be directly applied in the lab sessions and vice versa. The primary focus of laboratory is to cultivate a strong understanding of safe laboratory practices and provide students with hands-on laboratory experiences related to key concepts in chemistry covered in the lecture component, including physical properties, moles, and solutions. The laboratory portion places significant emphasis on thorough analysis and interpretation of data and results.

**Laboratory Learning Objectives:** By the end of this course, students are expected to:

1. Safely perform basic scientific experiments in the laboratory setting.
2. Demonstrate meticulous and comprehensive recording, analysis, and interpretation of experimental data.
3. Apply and further develop the concepts introduced in the lecture component through practical laboratory work.

**Lab Report Format:** There are two distinct parts associated with the lab report grade:

1. Part one will be submitted through D2L. This part will include answers to the Prelab Assignment and questions related to different sections of the lab, such as the introduction, methods, data, and result analysis. The deadline for the Prelab Assignment is 15 minutes prior to the start of the lab (subject to change). These components typically account for 60% of your lab grade.
2. The second major part of your lab report is the Data and Results section, which you will complete on paper and turn in the day of the lab. The Data and Results sheet counts as 40% of your lab grade.

**Lab Safety:** For specific issues regarding lab safety, please refer to the "Safety First" chapter in your lab manual. It is crucial to come to the lab prepared and on time as a matter of safety. Your laboratory instructor has the authority to dismiss any student who is deemed unprepared for the lab. In such cases, the student will receive a zero for the lab and will not be given the opportunity to make it up.

Additional lab safety measures to keep in mind:

1. Ensure your legs and feet are properly covered while working in the lab.
2. Face shields must be always worn during lab sessions.
3. Eating, drinking, smoking, snorting, or dipping is strictly prohibited in the lab. All food and beverages, including closed containers, should be left outside the lab.
4. Sitting on the lab bench is not allowed as it is an unsafe practice.
5. Using electronic devices for non-academic purposes during lab sessions is prohibited and considered disrespectful.
6. Weapons, whether legal or otherwise, are strictly prohibited in the lab.
7. It is mandatory to wash your hands at the conclusion of each wet lab.

**UNG Chemical Hygiene Plan:** UNG (University of North Georgia) has implemented a Chemical Hygiene Plan (CHP) to ensure the safety of faculty, staff, and students while working in UNG laboratories. The CHP includes Standard Operating Procedures (SOPs) and guidelines for safe handling and storage of hazardous chemicals. These measures are in place to protect the well-being of everyone involved. For more detailed information on the UNG Chemical Hygiene Plan, including standard laboratory safe handling and storage requirements, please refer to the following document:

UNG Chemical Hygiene Plan

Lab		Topics
AUGUST	24	No Lab
	31	Introduction, Syllabus, and Lab 1 – First, Safety First
SEPTEMBER	7	Lab 2 – Measurements and Calculations
	14	Lab 3 – Metrics and Graphing
	21	Lab 4 – Density of a Solid
	28	No Lab
OCTOBER	5	Lab 5 – The Law of Definite Proportions
	12	Lab 6 – Moles – Reaction of a Mystery Metal with HCl
	19	Lab 7 – Goblins and Goblets
	26	No Lab
NOVEMBER	2	Lab 8 – Metals Determination of Specific Heat
	9	Lab 9 – Charles' Law
	16	Lab 10 – Physical Separation of a Mixture
	23	NO Lab – FALL BREAK (THANKSGIVING)
	30	Lab 11 – Solutions, Doses and Potions
DECEMBER	7	No Lab
	11	Finals Week

Requests for late submissions after the deadline will be considered under specific circumstances. Generally, only those due to excused absences will be accommodated. Excused absences encompass a range of situations beyond the student's control, including:

- Illness
- Serious emergencies
- Special curricular requirements (e.g., field trips, professional conferences)
- Military obligations
- Inclement weather conditions
- Religious holidays
- Court-imposed legal obligations
- Approved accommodations
- Medically necessary absences due to pregnancy or childbirth
- The unfortunate event of a death in the immediate family
- Participation in official university-sponsored activities

#### **Deadline Considerations:**

- We will use the D2L calendar and the schedule in the D2L course Nav Bar for assignment due dates. Please check it every day.
- Requests for late submissions for Lab 1-3, will be considered until October 13, 2023, 3:00 PM.
- After the midpoint grade is issued on October 13, 2023, 3:00 PM, late submissions Lab 1-3 will not be accepted.

#### **Lecture Component:**

- Active participation in course activities is crucial for effective learning in chemistry. Makeup options are **unavailable** for missed lecture assignments (such as activity worksheets), leading to a forfeiture of points for these activities, which directly relate to your attendance and participation.

**Laboratory Component:** Laboratory experiments involve complex setup procedures, making makeup arrangements challenging. To address this, the lab schedule has been thoughtfully designed to incorporate two designated make-up days. These days are reserved for students with excused absences, supported by appropriate documentation. You must email your instructor about your intention to attend the make-up lab, so the material can be setup. I value your commitment to your education and understand that unforeseen circumstances can arise. It is important to communicate and provide documentation to ensure fair consideration of late submissions.

**Class Evaluations:** Class evaluations at UNG are conducted online through Banner. Evaluation of a class is considered an essential component of the course, so a student will not be permitted to access their course grade until the evaluation has been completed. The evaluations will be accessible beginning one week prior to Final Exam week.

**Supplemental Syllabus:** For further information about UNG policy about Academic Exchange, Academic Integrity Policy, Academic Success Plan Program, Class Evaluations, Course Grades, and Withdrawal Process, Disruptive Behavior Policy, Inclement Weather, Smoking Policy, COVID-19, and Students with Disabilities please refer to the UNG supplemental syllabus: <http://ung.edu/academic-affairs/policies-and-guidelines/supplemental-syllabus.php>

**Academic Dishonesty:** As members of the academic community, all students are expected to recognize and uphold standards of intellectual and academic integrity.

### **What Comprises Academic Dishonesty?**

- **Plagiarism** - ALWAYS cite your sources. Plagiarism is using other people's writing or ideas without giving credit. This includes paraphrasing material without citing the source and submission of assignments completed by someone else.

- **Cheating on Exams** - Utilize only authorized materials during proctored exams. Additionally, sharing information with other students before or after an exam is also considered cheating.

- **Unauthorized Collaboration** - Work individually on assignments unless your professor approves group work.

- **Falsification** - It is a violation of academic honesty to misrepresent material or fabricate information in an academic exercise, assignment, or proceeding.

- **Unauthorized Use or Distribution of Copyrighted Material** - Unauthorized distribution of copyrighted material occurs when a student utilizes, reproduces, or distributes copyrighted material without written permission by the copyright owner. The unauthorized use or distribution of this course material is expressly prohibited. This includes sharing any information about this course with websites or any other third party. Additionally, copying or buying copyrighted course materials is prohibited.

- **"Tutoring" Services** - If a "tutoring" service provides solutions to course assignments, this is considered cheating. Legitimate tutoring services will never directly give answers to course assignments. Violation of the Academic Honesty Policy can result in failure of the assignment, failure of the course, and/or dismissal from your institution. Ignorance of this policy is not an excuse or a

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### **ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

The University of North Georgia is committed to equal access to its programs, services, and activities, and welcomes otherwise qualified students with disabilities. Students who require accommodations and services must register with Disability Services and submit supporting documentation. Disability Services provides accommodation memos for eligible students to give to their instructors. Students are responsible for making arrangements with instructors and must give reasonable prior notice of the need for accommodation. For the Dahlonega campus, please contact see: Norma Smith, Stewart Success Center, Academic Advisement, room 235, Phone: 706 867-2857.

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