

CHEM 122

Spring 2024

Dr. Heather M. Boyd

Email: hbass1@vols.utk.edu

Office Hours: 10:00 am – 12:00 pm MWF in Bu 516

or you may email me to schedule a one-on-one appointment for another time

Lecture: 12:40 – 1:30 pm MWF in Bu 555

Textbook/Lab Manual: Zumdahl and Zumdahl *Chemistry: An Atoms First Approach*, 3rd Edition. OWLv2 online homework systems is **required** for this course. With your purchase of OWLv2 you receive a built-in electronic copy of the aforementioned textbook. This means that you do not need to purchase a hard copy unless you wish to. OWLv2 and the e-text are included with your Inclusive Access purchase.

Grading

Exams (3)	45% (15% each)
Quizzes	15%
Online Homework	15%
Participation (Clicker)	5%
Final Exam	20%
Total	100%

Grading Scale: These letter grade assignments are subject to change, but only in the direction beneficial to the students.

• 94.0 and above	A	• 64.0 – 67.9	C-
• 88.0 – 93.9	A-	• 60.0 – 63.9	D+
• 84.0 – 87.9	B+	• 56.0 – 59.9	D
• 80.0 – 83.9	B	• 52.0 – 55.9	D-
• 76.0 – 79.9	B-	• Below 51.9	F
• 72.0 – 75.9	C+		
• 68.0 – 71.9	C		

Participation: We will have clicker questions during lectures for participation points. You may use a clicker device or you may use the Turning Technology clicker app on your phone. ***Clicker questions will start counting towards your participation grade starting Monday, January 29th.*** Each clicker question will be worth two points. For each correct answer, you will receive ALL two points. For an incorrect answer, you will receive one point. If you earn half of the day's points, then you will receive full participation for the day.

****If you miss a lecture due to illness or personal emergency then you can receive participation credit by submitting a written, verifiable excuse to me. I must receive this excuse within a week after your absence or you will not receive credit for the absence.****

Clicker Registration: You will need to register your **license** and **clicker app** with PointSolutions (Echo 360). You will also need to register your app/device on Canvas. Please use the link on Canvas under the module labeled “Clickers” to complete this registration process. If you registered your license and clicker app with PointSolutions AND Canvas before then you do not need to re-register your device this semester.

Homework: We will be using OWLv2 electronic homework systems. Homework assignments can be accessed under “Modules” “OWLv2 Homework” “Homework_CHEM122_Boyd_Spring 2024”. Due dates for ALL assignments can be found in the exam and homework calendar that is posted on Canvas under the “Getting Started” module, as well as in the Canvas calendar. Late homework is not accepted unless it is due to an extenuating circumstance and proper documentation is provided. Please take note of the following information regarding homework:

- There are six assignments at the beginning of the semester for homework extra credit. They include the following:
 - Five short introduction assignments:
 - (1) Intro: Working with OWL
 - (2) Intro: Mastery Assignments
 - (3) Intro: Non-Mastery Assignments and Answering Questions
 - (4) Intro: ChemDoodle
 - (5) Intro: Where to Find Help
 - One Math Review assignment

There are four types of assignments for each chapter. Two are for grades and two are not. They are described in the table below:

Assignment Type	Grade	Given Attempts	Description	Best Time to Do the Assignment
Mastery	Graded	10	Single concept questions, comes with group (3 questions per group). Need to answer 2 out of 3 correctly to get credit.	After the concept is covered in each lecture. Don't wait until the chapter is finished and too many concepts are covered.
EOC (End Of Chapter)	Graded	6	Multi-concept questions, applications	After Mastery assignments and after the chapter is finished.
Multimedia Activity	Not graded		Short videos, simulations	Before lecture, get some ideas what will be covered in lecture
Adaptive Study Plan	Not graded		Test and study plan based on your test result	After chapter is finished, preparation for exams

Quizzes: There will be eight online quizzes that you will access through OWLv2. You will be able to access these quizzes for 24-hrs on the day that the quiz is available (see “Homework, Quiz, and Exam Calendar_CHEM122_Spring 2024” on Canvas under “Modules” “Getting Started” or the course calendar on Canvas). The quizzes will be timed and will be comprised of five questions worth 5 pts each. You will only receive one attempt per quiz. Your two lowest quiz grades will be dropped at the end of the semester.

Exams: There will be three (3) 90-minute exams and one (1) 2-hour final exam. The first 3 exams will be given *on the selected days (see below) from 7:00 – 8:30 pm*, while the final exam will be given during the allotted final exam period. Make up exams will take place on Thursdays the same week of the exam (time and location TBD) and are only for those students who miss an exam due to a documented extenuating circumstance (please see “Hilltopics” for what qualifies as an extenuating circumstance). Every student is required to take the comprehensive final exam at the end of the term during the scheduled exam period. If the final exam is missed, then that student will receive an incomplete in the course. ***ALL LOCATIONS ARE TBD***

Exam Schedule

Exam 1	Tuesday, February 13 th	7:00 – 8:30 pm
Exam 2	Tuesday, March 5 th	7:00 – 8:30 pm
Exam 3	Tuesday, April 16 th	7:00 – 8:30 pm
Final Exam	Thursday, May 9 th	10:30 am – 12:30 pm

*****If the final exam is a higher grade than the lowest exam grade then the final exam grade will replace the lowest exam grade as long as all 3 regular exams are taken.*****

Regrades: Requests for regrades must be received by me within one week of the exam return date. You must fill out the regrade request form and bring it to me, along with your exam during my office hours. Requests for regrades will result in a regrade of the **ENTIRE** exam. We reserve the right to photocopy exams during grading. Regrading will be conducted only by the **INSTRUCTOR**.

Calculator policy: Bring a calculator to every exam. Please verify that it works and that it has exponential and logarithm functions. **For exams, you are only allowed to use a non-graphing, non-programmable scientific calculator that does not have wireless capabilities (ex. TI 30).** If you use a graphing calculator or one with wireless capabilities on an exam, then it will be considered cheating, and you will be dealt with accordingly.

Student Disabilities: The University of Tennessee, Knoxville, is committed to providing an inclusive learning environment for all students. If you anticipate or experience a barrier in this course due to a chronic health condition, a learning, hearing, neurological, mental health, vision, physical, or other kind of disability, or a temporary injury, you are encouraged to contact Student Disability Services (SDS) at 865-974-6087 or sds@utk.edu. An SDS Coordinator will meet with you to develop a plan to ensure you have equitable access to this course. If you are already registered with SDS, please contact me (the instructor) to discuss implementing accommodations included in your course access letter.

Academic Honesty: The Honor Statement as printed in [Hilltopics](#) encourages each student to make a personal commitment to academic integrity.

*****Cheating will not be tolerated. Cheating on an exam will result in a 0 on that exam and you will forfeit having your final replace your lowest exam grade. Cheating on the final exam will result in an F in the class regardless of your standing. Any instance of cheating will also result in that person being written up to Student Conduct.*****

Generative AI Tools: In this course, it is expected that all submitted work is produced by the students themselves. Students must not seek the assistance of Generative AI Tools like ChatGPT. Use of a Generative AI Tool to complete an assignment constitutes academic dishonesty.

Extra Help: Two resources that the University of Tennessee offers are the Chemistry Learning Center (Buehler Hall 513 and Strong Hall 303) and the Student Success Center. The Chemistry Learning Center is free to all students and is staffed by TAs from Monday to Friday. A Supplemental Instruction (SI) component is provided free for all students who want to improve their understanding of the material taught in this course. A student who has already mastered the course and who has been trained to facilitate group sessions serves as the SI leader. For information about the program, session schedule/updates, and additional office hour times visit <http://studentsuccess.utk.edu/>

Communication: ALL course material and announcements will be posted on Canvas. This means you should check Canvas on a daily basis. If Canvas does not answer a particular question, then you may email your TA or me.

Emails: In the subject line of your emails, please write CHEM122. All emails will be answered within 24 hours of being received.

The instructor reserves the right to make changes in the syllabus when necessary to meet learning objectives, to compensate for missed classes, or for similar reasons. Any changes made will be announced during class.

Week	Lecture/Exams
January 22 – January 26	(M) Review – Measurements and Calculations in Chemistry (W) Review – Measurements and Calculations in Chemistry (F) Review – Measurements and Calculations in Chemistry
January 29 – February 2	(M) Review – Measurements and Calculations in Chemistry (W) Chapter 1 – Chemical Foundations (F) Chapter 1 – Chemical Foundations
February 5 – February 9	(M) Chapter 1 – Chemical Foundations (W) Chapter 2 – Atom Structure and Periodicity (F) Chapter 2 – Atom Structure and Periodicity

February 12 – February 16	(M) In-class Exam 1 Review (T) EXAM 1 (W) Chapter 2 – Atom Structure and Periodicity (F) Chapter 2 – Atom Structure and Periodicity
February 19 – February 23	(M) Chapter 2 – Atom Structure and Periodicity (W) Chapter 3 – Bonding: General Concepts (F) Chapter 3 – Bonding: General Concepts
February 26 – March 1	(M) Chapter 3 – Bonding: General Concepts (W) Chapter 3 – Bonding: General Concepts (F) Chapter 3 – Bonding: General Concepts
March 4 – March 8	(M) In-Class Exam 2 Review (T) EXAM 2 (W) Chapter 4 – Molecule Structure and Orbitals (F) Chapter 4 – Molecule Structure and Orbitals
March 11 – March 15	Spring Break – No Classes!!!
March 18 – March 22	(M) Chapter 4 – Molecule Structure and Orbitals (W) Chapter 4 – Molecule Structure and Orbitals (F) Chapter 5 – Stoichiometry
March 25 – March 29	(M) Chapter 5 – Stoichiometry (W) Chapter 5 – Stoichiometry (F) No Class – Spring Recess
April 1 – April 5	(M) Chapter 6 – Types of Chemical Reactions and Solution Stoichiometry (W) Chapter 6 – Types of Chemical Reactions and Solution Stoichiometry (F) Chapter 6 – Types of Chemical Reactions and Solution Stoichiometry
April 8 – April 12	(M) Chapter 6 – Types of Chemical Reactions and Solution Stoichiometry (W) Chapter 6 – Types of Chemical Reactions and Solution Stoichiometry (F) Chapter 7 – Chemical Energy
April 15 – April 19	(M) In-Class Exam 3 Review (T) EXAM 3 (W) Chapter 7 – Chemical Energy (F) Chapter 7 – Chemical Energy
April 22 – April 26	(M) Chapter 7 – Chemical Energy (W) Chapter 8 - Gases (F) Chapter 8 - Gases

April 29 – May 3	(M) Chapter 8 - Gases (W) Chapter 8 - Gases (F) Final Exam Review Day 1
May 6 – May 10	(M) Final Exam Review Day 2 (W) Study Day (R) Final Exam

Learning Objectives for Chemistry 122:

1. Become familiar with units of measurement and their inherent uncertainty, as well as learn how to convert from one set of units to another.
2. Gain a basic understanding of the structure of an atom and the properties associated with an atom, including its electronic properties.
3. Learn about the periodic properties of the elements using the periodic table as a guide.
4. Learn about the difference between molecular and ionic compounds, including the bonding between the two types. Be able to identify and name both molecular and ionic compounds.
5. Use stoichiometry to determine amounts of reactants needed for a complete reaction or to determine the amount of product produced.
6. Learn about aqueous solutions and various chemical reactions. Use solution stoichiometry for aqueous based reactions.
7. Learn about heat transfer in chemical reactions. Be able to calculate enthalpy.
8. Become introduced to gases and gas laws. Be able to manipulate the gas laws.
9. Learn how to study and not just memorize material, but instead be able to apply it and gain a sound understanding of the material.