COURSE SYLLABUS

CHEM 1400 Fundamentals of General Chemistry

Spring 2025

Instructor: TBA

Field: Chemistry

Credits: 3

Instructor: TBA

Course Description

This course provides an introduction to fundamental concepts in chemistry, including the structures and properties of matter, stoichiometry, gas laws, kinetics and thermodynamics, reaction equilibrium, and electrochemical processes. Students will also be introduced to the basics of organic chemistry, including nomenclature and functional groups. The course is composed of a lecture, discussion group, and laboratory components.

Learning Objectives

By the end of this course, students will be able to do the following:

- Understand the basic principles of chemistry, including the properties and structures of matter, stoichiometry, and gas laws
- Analyze electrochemical processes and their applications in various fields, such as energy storage and conversion
- Identify and describe the nomenclature and functional groups of organic compounds
- Apply the principles of kinetics and thermodynamics to analyze chemical reactions and predict reaction equilibrium
- Develop laboratory skills and techniques to perform experiments, collect data, and analyze results
- Communicate scientific findings and ideas effectively through written reports and oral presentations

Required Text/Readings:

1. ***Chemistry: The Central Science*** by Brown, LeMay, Bursten, and Murphy (13th edition)
2. ***Laboratory Manual for Principles of General Chemistry*** by Beran (10th edition)

Accessibility Services (Accommodations)
Students with documented academic, medical, emotional, and/or physical disabilities, who require accommodation, must provide current documentation attesting to the specific nature of their disability to Academic Accommodations Coordinator and Associate Registrar. Students are responsible for submitting the appropriate documents and forms in a timely manner. A meeting to review documentation and discuss accommodations is strongly recommended.

Academic Honesty
Please read the relevant section of the College's policy on academic honesty in the student Code of Conduct. Briefly academic dishonesty includes: cheating, fabrication, and plagiarism. Please ask me if you have any questions about whether something constitutes academic dishonesty. Academic dishonesty will not be tolerated and will result in failure of the course. Institutional penalties may also apply.

Attendance Policy & Class Participation
Your attendance and participation will be formally graded. Experiential learning is an important component of this class. You are required to complete required readings, watch lecture videos, and engage in online class activities.

You are required to submit assignments/exams ON TIME. Any late assignment will result in a deduction of points that may affect your final grade. If you know that you will have a conflict with a due date, or if you are having problems with any assignment, especially those that lead to you submitting the assignment late, you need to plan in advance so that we can discuss the situation and an alternative arrangement (hopefully) can be made that is mutually beneficial.

Active learning is more efficient than passive learning, and therefore, will save your time.

Evaluation of Performance

Final Grading
Your grade will be based upon your performance on exams, assignments, and

participation.

Quizzes	15%
Homework	15%
Laboratory Reports	20%
Midterm Exam	20%
Final Project	30%
Total	100%

Grades will be assigned as follows:

Grade		Grade	
A	(93- 100%)	C	(73-76%)
A-	(90-92%)	C-	(70-72%)
B+	(87-89%)	D+	(67-69%)
B	(83-86%)	D	(63-66%)
B-	(80-82%)	D-	(60-63%)
C+	(77-79%)	F	(<60%)

Last but Not Least

This syllabus is tentative and is subject to change. Any changes will be announced on multiple occasions and as far ahead of time as possible. It is your responsibility to be aware of any changes that occur.

Tentative Schedule of Topics

Module	Topic	Required Readings
1	Introduction to Chemistry The Nature of Chemistry Scientific Method and Measurement Atomic Structure and Chemical Bonding Atomic Theory and Structure Chemical Bonding	Chapter 1 Chapter 2

2	Chemical Reactions and Stoichiometry Chemical Equations and Reaction Stoichiometry Limiting Reactants and Percent Yield Gases and Gas Laws Properties of Gases Gas Laws and Their Applications	Chapter 5 Chapter 6 Chapter 10
3	Thermochemistry and Thermodynamics Energy and Enthalpy The First Law of Thermodynamics The Second and Third Laws of Thermodynamics	Chapter 7 Chapter 8
4	Chemical Equilibrium The Concept of Equilibrium Equilibrium Constants and Their Applications Electrochemistry Introduction to Electrochemistry Electrochemical Cells and Their Applications	Chapter 9 Chapter 20
5	Introduction to Organic Chemistry Organic Compounds and Their Properties Nomenclature and Functional Groups	Chapter 21 Chapter 22