

Syllabus for CHE-1210

GENERAL CHEMISTRY I WITH LABS

COURSE DESCRIPTION

Chemistry is a science that deals with the composition, structure, and properties of substances and with the transformations that they undergo. It is the "study of change." In this course, the first of a two-semester general chemistry sequence with labs, we explore the structure of the atom, the molecules that form from atoms, and the basic concepts of chemical reactivity, including the relations between amounts of materials undergoing reactions and the energetics of those reactions. At the atomic and molecular level, chemistry is a very abstract subject, but the study of atoms and molecules is fundamental to understanding life itself, since all matter is made up of atoms and molecules. Through practical examples and applications, the course aims to explain not only the abstract concepts of chemistry, but also how those concepts are understood in real-life contexts.

COURSE OBJECTIVES

After completing this course, students should be able to:

- CO 1** Perform calculations using dimensional analysis (factor-label method).
- CO 2** Accurately use basic chemical nomenclature.
- CO 3** Relate basic atomic theory to the trends in the periodic table.
- CO 4** Correlate chemical equations and stoichiometry.
- CO 5** Recognize and solve reactions occurring in aqueous solution.
- CO 6** Describe the relationships between gases and reactions involving gases.
- CO 7** Relate the energy changes that accompany chemical reactions to the first law of thermodynamics.
- CO 8** Identify the different types of chemical bonds including the shapes of molecules and their effect on polarity.
- CO 9** Differentiate nuclear reactions and solve problems based on the concept of half-life.
- CO 10** Solve problems in chemistry using critical thinking skills.

- CO 11** Employ good laboratory practices (GLP) when handling chemicals.
- CO 12** Collect and evaluate qualitative and quantitative experimental data.
- CO 13** Correlate laboratory experiments with the principal topics of General Chemistry I.
- CO 14** Demonstrate scientific literacy through research and writing on topics related to real-life applications of chemistry.

COURSE MATERIALS

You will need the following materials to complete your coursework. Some course materials may be free, open source, or available from other providers. You can access free or open-source materials by clicking the links provided below or in the module details documents.

Required Materials

- Overby, J. (2025). *Chemistry* (15th ed.). McGraw-Hill
ISBN-13: 978-1265338619
- ALEKS (Assessment and Learning in Knowledge Spaces)

Students please note: This course is designed to be an integrated online experience. Therefore, you will not purchase a hard copy of the textbook. ALEKS will provide you with a digital copy, along with access to various course activities and assessments, and virtual labs. You can find instructions on how to purchase access to ALEKS in the **About ALEKS** area of the course site. Since all required materials are accessed through ALEKS, the course exams **must** be taken online through the University's Online Proctor Service.

COURSE STRUCTURE

General Chemistry I With Labs is a four-credit, online course consisting of **ten** modules. Modules include an overview, list of topics, learning objectives, study materials, and activities. Outlined below are the module titles along with the course objectives covered.

- Module 1: Introduction and Measurement**
Course objectives covered in this module: CO 1, CO 10, CO 11, CO 12, CO 13, CO 14
- Module 2: Atomic Structure and Chemical Compounds**
Course objectives covered in this module: CO 1, CO 2, CO 3, CO 10, CO 11, CO 12, CO 13, CO 14
- Module 3: Mass Relationships for Compounds**
Course objectives covered in this module: CO 1, CO 4, CO 10, CO 11, CO 12, CO 13, CO 14

- **Module 4: Reactions in Aqueous Solutions**
Course objectives covered in this module: CO 1, CO 4, CO 5, CO 10, CO 14
- **Module 5: Gases**
Course objectives covered in this module: CO 1, CO 4, CO 6, CO 10, CO 11, CO 12, CO 13, CO 14
- **Module 6: Thermochemistry**
Course objectives covered in this module: CO 1, CO 7, CO 10, CO 11, CO 12, CO 14
- **Module 7: Quantum Theory and the Electronic Structure of Atoms**
Course objectives covered in this module: CO 3, CO 10, CO 11, CO 12, CO 13, CO 14
- **Module 8: Periodic Relationships Among the Elements**
Course objectives covered in this module: CO 3, CO 14
- **Module 9: Chemical Bonding and Molecular Geometry**
Course objectives covered in this module: CO 8, CO 10, CO 11, CO 12, CO 13, CO 14
- **Module 10: Nuclear Reactions**
Course objectives covered in this module: CO 9, CO 10, CO 14

ASSESSMENT METHODS

For your formal work in the course, you are required to participate in online discussion forums, complete chapter assignments and laboratory assignments, and take three proctored online examinations. See below for details.

Consult the Course Calendar for due dates.

Promoting Originality

One or more of your course activities may utilize a tool designed to promote original work and evaluate your submissions for plagiarism. More information about this tool is available in [this document](#).



Discussion Forums

You are required to participate in **ten** graded discussion forums, worth 10 percent of your course grade, as well as an ungraded Introductions Forum.

Communication among fellow students and with the mentor is a critical component of online learning. Participation in online discussions involves two distinct activities: an initial response to a posted question (discussion thread) and subsequent comments on classmates' responses. Meaningful participation is

relevant to the content, adds value, and advances the discussion. Comments such as "I agree" and "ditto" are not considered value-adding participation. Therefore, when you agree or disagree with a classmate, the reading, or your mentor, state **and support** your agreement or disagreement. You will be evaluated on the quality and quantity of your participation. Responses and comments should be properly proofread and edited, professional, and respectful.

For each discussion forum, you are required to write an initial post and at least two replies to your classmates' posts. Your initial post should be on topic, reflect what you have learned (not just your opinion), and should present your original ideas and applications. It should be a minimum of 250 words in length and should include citations and links to any references you use other than the textbook. Your two replies to your classmates should offer new substantiated ideas or thoughtful questions and must be courteous and respectful. Each reply should be a minimum of 60 words in length.

For posting guidelines and help with discussion forums, please see the Student Handbook located within the General Information page of the course website.



ALEKS Lab Assignments

General Chemistry I with Labs includes **thirteen** virtual labs worth 25% of your grade. The course Calendar will indicate when your labs are due. The labs are related to the chemistry concepts you are learning throughout the course.



ALEKS Assignments

General Chemistry I With Labs has **ten** ALEKS assignments. Each assignment has 25 questions and you will have unlimited attempts to answer each question without penalty. For each incorrect response, you will be provided with a new, but parallel, question to complete. Be sure to utilize the *Example* and *Explanation* features to gain feedback on each assigned question.

Your ALEKS assignment grades will be exported into the Moodle gradebook once the due date timestamp passes. However, the assignment will remain available for further practice after the due date in the *Study Mode*.



Examinations

You are required to take **three** proctored online examinations. **Your exam must be taken online within the ALEKS platform - there is no pen and paper option available for this course.** The exams require that you use the University's [Online Proctor Service](#) (OPS). Please refer to the "Examinations and Proctors" section of the Online Student Handbook (see [Student Handbooks](#) in the General Information area of the course website) for further information about scheduling and taking online exams and for all exam policies and procedures. You are strongly advised to schedule your exam within the first week of the semester.

Consult the Course Calendar for the official dates of exam weeks.

Exam 1

The first exam is a closed-book exam, worth 15 percent of your course grade. It is three hours long and covers all topics and material from Modules 1–3 of the course. Your assignments have provided you with direct practice for your exam questions. Use the STUDY MODE from your assignments to prepare for your exam. Work to answer the questions correctly and without having to look anything up to solve. Use the "Try Another" feature to practice the topic with a variety of looks.

You have just one attempt to complete your exam.

You will have access to all ALEKS data tabs during the examination, providing you with access to all tables and charts, as your assignments gave you.

Note: You are provided access to an onscreen scientific calculator, or you may provide your own scientific calculator for this exam. You may not use a calculator on a phone, PDA, or any similar device.

Exam 2

The second exam is a closed-book exam, worth 15 percent of your course grade. It is three hours long and covers all topics and material from Modules 4-6 of the course. Your assignments have provided you with direct practice for your exam questions. Use the STUDY MODE from your assignments to prepare for your exam. Work to answer the questions correctly and without having to look anything up to solve. Use the "Try Another" feature to practice the topic with a variety of looks.

You have just one attempt to complete your exam.

You will have access to all ALEKS data tabs during the examination, providing you with access to all tables and charts, as your assignments gave you.

Note: You are provided access to an onscreen scientific calculator, or you may provide your own scientific calculator for this exam. You may not use a calculator on a phone, PDA, or any similar device.

Exam 3

The third exam is a closed-book exam, worth 15 percent of your course grade. It is three hours long and covers all topics and material from Modules 7-10 of the course. Your assignments have provided you with direct practice for your exam questions. Use the STUDY MODE from your assignments to prepare for your exam. Work to answer the questions correctly and without having to look anything up to solve. Use the "Try Another" feature to practice the topic with a variety of looks.

You have just one attempt to complete your exam.

You will have access to all ALEKS data tabs during the examination, providing you with access to all tables and charts, as your assignments gave you.

Note: You are provided access to an onscreen scientific calculator, or you may provide your own scientific calculator for this exam. You may not use a calculator on a phone, PDA, or any similar device.

Statement about Cheating

You are on your honor not to cheat during the exam. Cheating means:

- Looking up any answer or part of an answer in an unauthorized textbook or on the Internet, or using any other source to find the answer.
- Copying and pasting or in any way copying responses or parts of responses from any other source into your online test. This includes but is not limited to copying and pasting from other documents or spreadsheets, whether written by yourself or anyone else.
- Plagiarizing answers.
- Asking anyone else to assist you by whatever means available while you take the exam.
- Copying any part of the exam to share with other students.
- Telling your mentor that you need another attempt at the exam because your connection to the Internet was interrupted when that is not true.

If there is evidence that you have cheated or plagiarized in your exam, the exam will be declared invalid, and you will fail the course.

Study Tips

This course utilizes research-based best practices for student success. Each task in this course is designed intentionally with the purpose of providing you with a clear pathway to success.

As you move through the course, consider the following study tips for success:

1. Time management is key to successful learning. To stay on track throughout the course, begin each week by consulting the Course Calendar. The Course Calendar provides an overview of the course and indicates due dates for submitting assignments, posting discussions, and scheduling and taking examinations.
2. Begin your lessons by reading the chapter in your eText. Make personal notes of key terms, major concepts, important formulas, and so on.
3. Utilize active study strategies (over passive study strategies). Examples of active study strategies include working problems over and over until you can solve them without looking anything up, taking notes in your own words and rewriting them, quizzing yourself using review questions, talking out loud about what you are studying, and creating concept maps on your own. Passive study strategies include highlighting notes, rereading notes, listening to video lectures without

pausing for think time or without taking notes, and reading the textbook without taking notes.

4. Work on your ALEKS assignment problems over and over until you can answer them without looking anything up. This will ensure you are ready for success on your exams. With unlimited attempts on each question, you have every opportunity to earn 100% on each assignment. Make a note of problems that you struggled with so that you review those before your exam.

GRADING AND EVALUATION

Your grade in the course will be determined as follows:

- **Discussion forums (10)**—10%
- **ALEKS virtual lab assignments (13)**—25%
- **ALEKS assignments (10)**—20%
- **Examinations (3, proctored)**—45%
 - Exam 1, covering Modules 1–3 (15%)
 - Exam 2, covering Modules 4–6 (15%)
 - Exam 3, covering Modules 7–10 (15%)

All activities will receive a numerical grade of 0–100. You will receive a score of 0 for any work not submitted. Your final grade in the course will be a letter grade. Letter grade equivalents for numerical grades are as follows:

A	= 93–100	C+	= 78–79
A–	= 90–92	C	= 73–77
B+	= 88–89	C–	= 70–72
B	= 83–87	D	= 60–69
B–	= 80–82	F	= Below 60

To receive credit for the course, you must earn a letter grade of C or better (for an area of study course) or D or better (for a course not in your area of study), based on the weighted average of all assigned course work (e.g., exams, assignments, discussion postings).

STRATEGIES FOR SUCCESS

First Steps to Success

To succeed in this course, take the following first steps:

- Read carefully the entire Syllabus, making sure that all aspects of the course are clear to you and that you have all the materials required for the course.
- Take time to read the entire Online Student Handbook. The Handbook answers many questions about how to proceed through the course, how to schedule exams, and how to get the most from

your educational experience at Thomas Edison State University.

- Arrange to take your examination(s) by following the instructions in this Syllabus and the Online Student Handbook.
- Familiarize yourself with the learning management systems environment—how to navigate it and what the various course areas contain. If you know what to expect as you navigate the course, you can better pace yourself and complete the work on time.
- If you are not familiar with web-based learning, be sure to review the processes for posting responses online and submitting assignments before class begins.

Using AI Ethically: A Guide for TESU Students

TESU's [Academic Code of Conduct](#) permits student AI use in support of their writing and research process—not as a replacement for original writing. Document AI use with an acknowledgment statement at the end of each assignment, noting the tools and prompts used. Cite any AI-generated content on the References page. Please review [Using AI Ethically: A Guide for TESU Students](#) for more detailed information.

COMMITMENT TO DIVERSITY, EQUITY, AND INCLUSION

Thomas Edison State University recognizes, values, and relies upon the diversity of our community. We strive to provide equitable, inclusive learning experiences that embrace our students' backgrounds, identities, experiences, abilities, and expertise.

ACCESSIBILITY AND ACCOMMODATIONS

Thomas Edison State University adheres to the Americans with Disabilities Act (ADA, 1990; ADAAA, 2008) and Section 504 of the Rehabilitation Act of 1973. The Office of Student Accessibility Services (OSAS) oversees requests for academic accommodations related to disabilities; a student who is pregnant, postpartum, or a student parenting a newborn who is not the birth parent [as covered under NJSA18A]; and students requesting academic accommodation for a short-term/temporary illness and/or injury. Information can be found on the [Office of Student Accessibility Services](#) webpage and questions can be sent to ADA@tesu.edu.

ACADEMIC POLICIES

To ensure success in all your academic endeavors and coursework at Thomas Edison State University, familiarize yourself with all administrative and academic policies including those related to academic integrity, course late submissions, course extensions, and grading policies.

For more, see:

- [University-wide policies](#)
- [Undergraduate academic policies](#)
- [Undergraduate course policies](#)
- [Graduate academic policies](#)
- [Graduate course policies](#)
- [Nursing student policies](#)
- [Nursing graduate student policies](#)
- [International student policies](#)
- [Academic code of conduct](#)