This course supports the assessment for TSP1. The course covers 1 competency and represents 1 competency unit.

**Introduction**

**Overview**
Chemistry is the study of matter. Everything you see and many of the things you don’t see are made up of atoms. By understanding these atoms and their interactions, chemists have been able to cure disease, travel to the moon, and feed a growing world. By understanding chemistry, you will find your own world expanded. You will find boiling water interesting and the back of the shampoo bottle fascinating. The National Science Teachers Association (NSTA) has published principles and standards addressing important chemistry topics that should be covered through the K-12 curriculum. Many states have followed the NSTA’s lead and are increasingly requiring that these concepts be taught to the students throughout the course of their science education. A firm grasp of the concepts covered in this course will allow you to confidently teach this material when you enter the classroom. This is the first term of a two-term sequence in chemistry. This course is designed to provide you with a broad overview of chemistry, and a fundamental understanding of basic lab techniques. To master these topics, you will utilize online learning resources and a physical lab kit.

**Getting Started**

This course is the laboratory application of content learned during your General Chemistry I course. You will be applying concepts, techniques, and mathematical calculations to demonstrate competency through the submission of six lab report assistants and one essay (one performance assessment). The lab kit, which you will use to complete the activities, contains most of the reagents needed for the experiments. General Chemistry I and General Chemistry I Laboratory should be completed together. This course will provide hands-on experience and real world examples to supplement the problems from the WileyPLUS learning resource. Complete the six labs listed in the pacing guide while you are working through and learning new material from the General Chemistry I course. What you learn in the lab course is essential to prepare for the objective assessment for General Chemistry I.

**Competencies**

This course provides guidance to help you demonstrate the following competency:

- **Competency 216.1.9: Analyzing Characteristics in Laboratory**
  The graduate applies effective laboratory techniques to examine physical and chemical characteristics of matter.

**Teaching Dispositions Statement**
Please review the [Statement of Teaching Dispositions](#).

**Course Instructor Assistance**
As you prepare to demonstrate competency in this subject, remember that course instructors
stand ready to help you reach your educational goals. As subject matter experts, mentors enjoy and take pride in helping students become reflective learners, problem solvers, and critical thinkers. Course instructors are excited to hear from you and eager to work with you.

Successful students report that working with a course instructor is the key to their success. Course instructors are able to share tips on approaches, tools, and skills that can help you apply the content you're studying. They also provide guidance in assessment preparation strategies and troubleshoot areas of deficiency. Even if things don't work out on your first try, course instructors act as a support system to guide you through the revision process. You should expect to work with course instructors for the duration of your coursework, and you are encouraged to contact them as soon as you begin. Course instructors are fully committed to your success!

Preparing for Success

The information in this section is provided to detail the resources available for you to use as you complete this course.

Learning Resources

The learning resources listed in this section are required to complete the activities in this course. For many resources, WGU has provided automatic access through the course. However, you may need to manually enroll in or independently acquire other resources. Read the full instructions provided to ensure that you have access to all of your resources in a timely manner.

Manually Enrolled Learning Resources

Take a moment to enroll in the learning resources listed in this section.

Laboratory Kit

The "General Chemistry I" lab kit from Carolina Biologicals is a physical shipment. This lab kit is covered by your program lab fee and is required to complete the performance assessment for General Chemistry I Lab. This kit includes all of the science equipment, supplies, and chemicals necessary to complete the following laboratory experiments at home:

- Measurement and Uncertainty
- Exploring Physical and Chemical Changes
- Fundamentals of Calorimetry
- Introduction to Molecules: Molecular Bonding and Shapes Investigation
- Investigating Chemical Reactions
- Single Replacement Reactions

The lab manual with lab instructions can be found using the link below. It can also be found in Taskstream and the course search feature. Editable copies of the lab report sheets are also available for download in Taskstream. Save your lab reports for submission in Taskstream at
the end of the course. The experiments reinforce science content and teach laboratory techniques. At the completion of the course, you will have completed the labs required for your final student project.

- Ordering Your Chem I Lab Course Kit
- Lab Manual

Automatically Enrolled Learning Resources

You can access the learning resources listed in this section by clicking on the links provided throughout the course. You may be prompted to log in to the WGU student portal to access the resources.

WileyPLUS

The WileyPLUS General Chemistry learning resource is an online course complete with readings, videos, and interactive exercises. Targeted feedback and self-assessment tools, as well as trackable exercises, will help you assess your strengths and quickly address misconceptions. The assignments are designed to guide you through the full course.

The WileyPLUS General Chemistry learning resource utilizes the following e-text:


Course Instructor Support

Your course instructor team is prepared to help you reach your educational goals. As subject matter experts, course instructors are fully committed to your success. You are encouraged to contact your course instructor team as soon as you begin the course. Course instructors are able to share study tips, and provide guidance in assessment preparation strategies and troubleshoot specific content areas. You can contact the course instructors at the following email: chemistry@wgu.edu

If you would like to schedule an appointment with one of your course instructors, you can do so by accessing the team calendar.

Pacing Guide

The pacing guide outlines important activities in this course and C288 and suggests a weekly structure to pace your completion of learning activities. The pacing guide is provided as a suggestion and does not represent a mandatory schedule. The following pacing guide is available as a reference to help you plan your studies as you engage with the activities in this course. Follow the pacing guide carefully to complete the General Chemistry I and General Chemistry I Laboratory courses in the suggested timeframe. Please refer to the Enhanced Pacing Guide for a comprehensive view of the WileyPLUS General Chemistry learning resources that align with each of the learning outcomes within this course.

If you think you may be ready to take the pre-assessment right away upon starting the course--or if you've already worked through the material and want a way to check your overall
test readiness before attempting the pre-assessment or objective assessment--then you'll want to make use of the Test Prep I Questions in WileyPLUS! Checkpoint Quizzes are also available in WileyPLUS to allow you to check your mastery of concepts every 2-3 chapters.

Week 1

- Meet with a CM to discuss requirements and success tips for the General Chemistry I and General Chemistry I Laboratory courses and to talk about when to take the first pre-assessment for General Chemistry I. It is generally not recommended that you take the pre-assessment immediately upon starting a chemistry course. The Test Prep I assignment is a great way to gauge your readiness for the pre-assessment--be sure and talk with a CM about the results if you decide to use it!
- Set up at least one CM appointment every other week for the first month of the course; adjust as necessary.
- The Numbers Used in Chemistry (WileyPLUS 02 1RA Resources)
  - complete "Measurement and Uncertainty" lab for General Chemistry Laboratory I
- The Numbers Used in Chemistry (WileyPLUS 03 1QA Questions)
- Elements and their Composition (WileyPLUS 04 2RA Resources)
- Elements and their Composition (WileyPLUS 05 2QA Questions)
- Compounds and their Composition (WileyPLUS 06 2RB Resources)
- Compounds and their Composition (WileyPLUS 07 2QB Questions)

Week 2

- Properties of Matter (WileyPLUS 08 3RA Resources)
  - complete "Chemical and Physical Changes" lab for General Chemistry Laboratory I
- Properties of Matter (WileyPLUS 09 3QA Questions)
- Properties of Energy (WileyPLUS 10 3RB Resources)
- Properties of Energy (WileyPLUS 11 3QB Questions)
- Checkpoint Quiz Chapters 1-3 (WileyPLUS 11)

Week 3

- Relationships Among the Elements and the Periodic Table (WileyPLUS 12 4RA Resources)
- Relationships Among the Elements and the Periodic Table (WileyPLUS 13 4QA Questions)
- Formulas and Names of Compounds (WileyPLUS 14 4RB Resources)
- Formulas and Names of Compounds (WileyPLUS 15 4QB Questions)

Week 4

- The Measurement of Masses of Elements and Compounds (WileyPLUS 16 5RA Resources)
The Measurement of Masses of Elements and Compounds (WileyPLUS 17 5QA Questions)
  - complete "Fundamentals of Calorimetry" lab for General Chemistry Laboratory I

Component Elements of Compounds (WileyPLUS 18 5RB Resources)
Component Elements of Compounds (WileyPLUS 19 5QB Questions)
Checkpoint Quiz Chapter 4-5 (WileyPLUS 19)
The Representation of Chemical Changes and Three Types of Changes (WileyPLUS 20 6RA Resources)
  - complete "Investigating Chemical Reactions" lab for General Chemistry Laboratory I
The Representation of Chemical Changes and Three Types of Changes (WileyPLUS 21 6QA Questions)

Week 5

- Ions in Water and How They React (WileyPLUS 22 6RB Resources)
- Ions in Water and How They React (WileyPLUS 23 6QB Questions)
- Mass Relationships in Chemical Reactions (WileyPLUS 24 7RA Resources)
  - complete "Replacement Reaction to Stoichiometry" lab for General Chemistry Laboratory I
- Mass Relationships in Chemical Reactions (WileyPLUS 25 7QA Questions)
- Checkpoint Quiz Chapters 6-7 (WileyPLUS 25)

Week 6

- The Energy of the Electron in the Atom (WileyPLUS 26 8RA Resources)
- The Energy of the Electron in the Atom (WileyPLUS 27 8QA Questions)
- The Periodic Table and Electron Configuration (WileyPLUS 28 8RB Resources)
- The Periodic Table and Electron Configuration (WileyPLUS 29 8QB Questions)

Week 7

- Chemical Bonds and the Nature of Ionic Compounds (WileyPLUS 30 9RA Resources)
- Chemical Bonds and the Nature of Ionic Compounds (WileyPLUS 31 9QA Questions)
- Chemical Bonds and the Nature of Molecular Compounds (WileyPLUS 32 9RB Resources)
- Chemical Bonds and the Nature of Molecular Compounds (WileyPLUS 33 9QB Questions)

Week 8

- The Distribution of Charge in Chemical Bonds (WileyPLUS 34 9RC Resources)
  - complete "Bonding and Molecular Geometry" lab for General Chemistry Laboratory I
- The Distribution of Charge in Chemical Bonds (WileyPLUS 35 9QC Questions)
• Checkpoint Quiz Chapters 8-9 (WileyPLUS 35)
• Prepare for Chem I exam for General Chemistry I (WileyPLUS 36)
• Test prep I questions for General Chemistry I (WileyPLUS 37)

Week 9

• Write the reflective essay for General Chemistry Laboratory I and submit the completed task in Taskstream
• Take the pre-assessment for General Chemistry I

Week 10

• Take the objective assessment for General Chemistry I

Note: This pacing guide does not replace the course. Please continue to refer to the course for a comprehensive list of the resources and activities.

General Chemistry I Laboratory

This course is designed to provide you with a broad overview of chemistry and a fundamental understanding of basic lab techniques. Topics include the following:

• Laboratory Safety
• Laboratory Techniques in the Classroom
• Measurement and Uncertainty
• Properties of Matter
• Properties of Energy
• Representation of Chemical Changes
• Stoichiometry
• Chemical Bonding

To master these topics, you will utilize online learning resources in C288: General Chemistry I and the physical lab kit.

Final Steps

Congratulations on completing the activities in this course! This course has prepared you to complete the assessments associated with this course. If you have not already been directed to complete the assessments, schedule and complete your assessments now. That also includes your Student Project. Submit the six lab reports and the essay for evaluation to Taskstream.