



COLLEGE CHEMISTRY I

PRINCIPLES OF CHEMISTRY I AND INTRODUCTION TO CHEMICAL PRACTICES I

The Principles of Chemistry I course addresses the nature of matter, energy, chemical reactions, and chemical thermodynamics. The course reviews descriptive chemistry of matter in the natural world as well as compositional and reaction stoichiometry of chemical compounds. Throughout the course, students learn to think like scientists by exploring the underlying theoretical foundations of chemistry, making intuitive arguments for how the world works, and supporting those arguments with quantitative measures. Built with an intention to engage students from a variety of backgrounds, students in the course will learn how to successfully study science by organizing their learning around mastery and ownership of materials.

Introduction to Chemical Practices I—the course's lab component—provides an introduction to the techniques of modern experimental chemistry and is designed to instill basic laboratory and analytical skills.

CHEMISTRY I

BIG IDEAS



ATOMS

We will look at the fundamental particles that make up matter and evaluate how we use light to investigate matter. From that, we will make the fundamental argument for how to construct the periodic table.

STATES OF MATTER

We will examine how states of matter are defined using theoretical underpinnings of gas laws. We will then discuss how those gas laws fail and lead to an argument for intermolecular forces that produce condensed matter. We will explore the liquid and solid properties related to intermolecular forces.

MOLECULES

We will discuss the formation of the chemical bond, learn to draw three-dimensional structures of these compounds, and make arguments about their chemical and physical properties.

THERMODYNAMICS

We will reconsider inter- and intramolecular forces in a more quantitative way. We will apply the first and second laws of thermodynamics to explain why chemical and physical processes happen and how we can do useful work with those processes.

TRANSFERABILITY

4 College Credits (3 for lecture, 1 for lab)

UT Course Codes: CH 301 + CH 104M

TCCNs: CHEM 1311 + CHEM 1111

PRE-REQUISITES

Algebra I

TECHNOLOGY

Computer, Laptop, Chromebook, or Tablet Access

PEDAGOGY

Flipped Classroom

Retrieval Practice

Peer Instruction