



COLLEGE CHEMISTRY II

PRINCIPLES OF CHEMISTRY II AND INTRODUCTION TO CHEMICAL PRACTICES II

The College Chemistry II course continues the development and application of concepts, theories, and laws underlying chemistry that were introduced in Principles of Chemistry I.

The course extends the study of thermodynamics taught in Principles of Chemistry I to the development of chemical equilibria and kinetics with applications to water chemistry and electrochemistry. In addition, students will gain insight into the workings of the material world through introduction to nuclear chemistry, battery technology, polymer chemistry and applications in organic chemistry and biochemistry.

Introduction to Chemical Practices II—the course's lab component—provides laboratory exercises that focus on analytical laboratory techniques, modern chemistry instrumentation, such as spectrophotometers, voltage probes, and a variety of experimental protocols of how to analyze and identify unknowns.

CHEMISTRY II

BIG IDEAS



EQUILIBRIA

Our focus will be on both phase changes of pure substances as well as those of mixtures. We will take a closer look at different types of equilibria, and the conditions under which these reactions occur.

WATER CHEMISTRY

Once we know the fundamentals of the balancing act we call equilibrium, we will explore the chemistry of acid-base reactions and equilibria. We will quantify acids and bases in solutions using the relationship of the ever-present proton (H^+) and hydroxide ion (OH^-).

ELECTROCHEMISTRY

We will examine how the energy that is locked up inside chemicals can be released in a controlled

manner such that we literally tap into that energy via electrochemical cells.

KINETICS

In Kinetics, we will map the progress of the reaction to a time scale. Catalysts, such as enzymes, will be studied as well.

CHEMISTRY IN THE MODERN WORLD

We will take a look at the role and reactions of polymers and biopolymers, along with the study of how chemical changes and their accompanying energy transformations are important parts of our everyday world. We will study common industrial chemical reactions used in manufacturing processes. Big ideas such as Nuclear and Organic Chemistry will be considered in this course.

TRANSFERABILITY

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

UT Course Codes: CH 302 + CH 104N

TCCNs: CHEM 1312 + CHEM 1112

PRE-REQUISITES

OnRamps CH 301 & CH 104M, AP Chemistry, or equivalent

TECHNOLOGY

Computer, Laptop, Chromebook, or Tablet Access

PEDAGOGY

Flipped Classroom

Retrieval Practice

Peer Instruction