



# GENERAL CHEMISTRY

## A SUBJECT COLLECTION

### OUR MISSION

At Boost, our mission is to ensure no student loses motivation or leaves education because they were unable to access effective, relevant tutorial support when they needed it the most.

### WHAT WE DO

Boost offers curated collections of short, topic level videos designed to mimic a private tutor experience. Our learning pathways improve student outcomes when used as an independent study resource, course prerequisite, exam preparation, or virtual tutor. Learning pathways can be customised to university or department curricula to ensure students get the information they need to succeed.

#### COLLECTION STATS



**840**

Videos



**527**

Assessment Questions



**69**

Hours



**907**

Learning Objectives



TOPIC	SUBTOPIC
<b>Properties of Matter</b>	Elementary Properties
	Basic Tools for Calculations
	Significant Figures
<b>Atomic Theory and Structure</b>	Atomic Theory and Structure
	Calculations Involving Moles
<b>Chemical Compounds</b>	Introduction to Periodic Table
	Types of Chemical Compounds
	Calculations Based on Moles
	Inorganic Compounds
<b>Chemical Reactions</b>	Stoichiometry
	Reactions
<b>Reactions in Aqueous Solutions</b>	Introduction to Aqueous Solutions
	Precipitation Reactions
	Acid-Base Reactions
	Oxidation-Reduction Reactions
<b>Gases</b>	Properties of Gases
	Gas Laws
	Mixtures of Gases
	Kinetic Theory of Gases
	Nonideal Gases

TOPIC	SUBTOPIC
<b>Thermochemistry</b>	Basic Concepts
	Heat
	Work
	First Law of Thermodynamics
	Enthalpy
<b>Electronic Structure of Atoms</b>	Electromagnetic Radiation
	Atomic Spectra
	Quantum Theory
	Bohr Model of Hydrogen Atom
	Quantum Mechanics
	Electron Orbitals
	Multielectron Atoms
<b>Periodic Table and Atomic Properties</b>	Periodic Law
	Metals and Nonmetals and Their Ions
	Sizes of Atoms and Ions
	Losing or Gaining Electrons
	Atomic Properties
<b>Introduction to Chemical Bonding</b>	Lewis Theory of Chemical Bonding
	Shapes of Molecules - VSEPR Theory
	Bond Lengths
	Bond Energies

**"BOOST PROVIDES ACCESSIBLE AND EFFECTIVE LEARNING RESOURCES WHICH ARE HIGHLY USEFUL AS A SUPPORT FOR MIXED-ABILITY COHORTS OF STUDENTS."**

**Dr. Gilad Livine**

*Professor of Accounting & Finance*

*University of Bristol*



TOPIC	SUBTOPIC
<b>More Aspects of Chemical Bonding</b>	Valence Bond VB Method
	Molecular Orbital MO Theory
	VB and MO Description of Benzene
<b>Intermolecular Forces Liquids and Solids</b>	Intermolecular Forces
	Properties of Liquids
	Properties of Solids
	Phase Diagrams
	Bonding in Solids
	Crystal Structures
	Ionic Structures
<b>Thermodynamics Second and Third Law</b>	Entropy
	Global Entropy Change
	Gibbs Free Energy
<b>Physical Properties and Solutions</b>	Solution Concentration
	Solution Process
	Solution Formation
	Solubility of Gases
	Colligative Properties
	Colloidal Mixtures
<b>Chemical Equilibria</b>	Reactions at Equilibrium
	Tools for Equilibrium Calculations
	Equilibria and Changes in Conditions

TOPIC	SUBTOPIC
<b>Acids and Bases</b>	Acids and Bases
	Aqueous Solutions of Acids and Bases
	Strong Acids and Bases
	Weak Acids and Bases
	Polyprotic Acids
	Ions as Acids and Bases
	General Approach to Acid-Base Calculations
	Acid-Base Reactions
	Lewis Acids and Bases
	Molecular Structure and Acid Strength
<b>Buffers and Titrations</b>	Common-ion Effect in Acid-Base Equilibria
	Buffer Solutions
	Acid-Base Indicators
	Titration Curves
<b>Solubility and Complex-ion Equilibria</b>	Solubility Product
	Precipitation
	Equilibria Involving Complex Ions

TOPIC	SUBTOPIC
<b>Electrochemistry</b>	Redox Reactions
	Electrode Potentials
	Standard Electrode Potentials
	Standard Potentials and Gibbs Free Energy
	Standard Potentials and Equilibrium Constants
	Electrolytic Cells
	Electrolysis
	Corrosion
	Batteries
<b>Chemical Kinetics</b>	Rate of Reaction
	The Rate Laws
	Zero Order Reactions
	First Order Reactions
	Second Order Reactions
	Reaction Mechanisms
	Effect of Temperature
	Theoretical Models for Reactions
	Catalysis



## OUR CURATED COLLECTIONS

### Subjects

Precalculus  
Calculus I  
Calculus II  
Statistics

Probability  
General Chemistry  
Organic Chemistry I  
Biochemistry

### Disciplines

Math for Engineering  
Math for Business & Economics  
Math for Medical Sciences



#### Content

- ✓ Bite-sized video tutorials help student learn at their own pace
- ✓ Step-by-step practice videos improve learning outcomes and practical understanding
- ✓ Curated courses may be assigned by instructors or taken by students independently
- ✓ Assessments measure student progress
- ✓ Customizable courses may be edited to suit the needs of specific learners



#### Flexibility

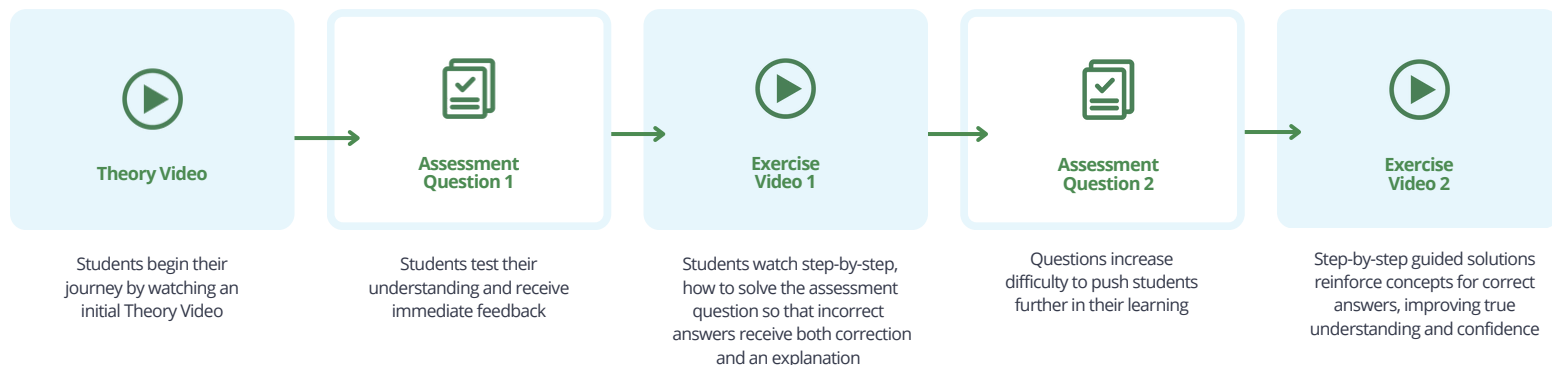
- ✓ Database of tutorial and practice videos provide students a boost in foundational math topics
- ✓ Flexible teaching resources for blended learning models
- ✓ Collection of curated online courses for use in blended learning or as prerequisites
- ✓ Editing tool to create and customize courses that meet your learners' needs



#### Technology

- ✓ Assign curated course playlists and assessments to your learners
- ✓ Track progress of your learners with live metrics and data visualization
- ✓ Create original courses from our library of over 5,000 videos and 1,700 questions
- ✓ Upload your own content to customize any course
- ✓ Search and save videos from the content library for future viewing

## OUR COURSE FLOW



Learn more at [boost-proprep.com](https://boost-proprep.com)