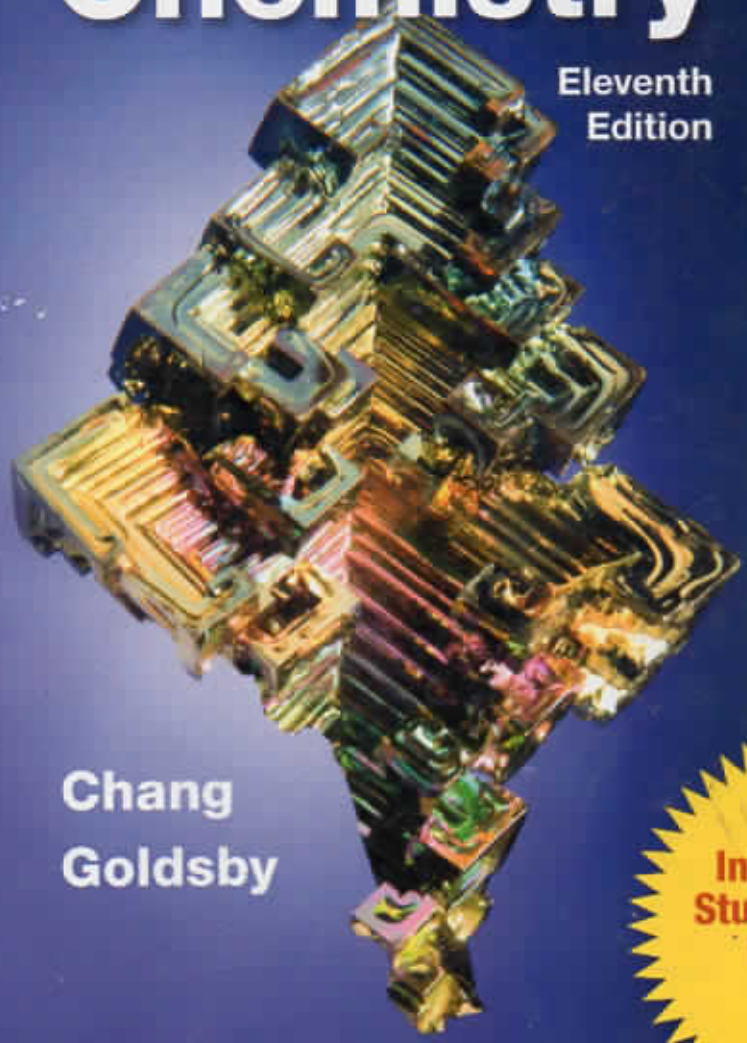
Chemistry

Eleventh Edition



Chang
Goldsby

This International Student Edition is for use outside the U.S.

McGRAW-HILL INTERNATIONAL EDITION

Eleventh Edition

Chemistry

Raymond Chang

Williams College

Kenneth A. Goldsby

Florida State University

Contents

Chemistry: The Study of Change 1

Atoms, Molecules, and Ions 38

Mass Relationships in Chemical Reactions 75

Reactions in Aqueous Solutions 118

Gases 172

Thermochemistry 230

Quantum Theory and the Electronic Structure of Atoms 276

Periodic Relationships Among the Elements 328

Chemical Bonding I: Basic Concepts 370

Chemical Bonding II: Molecular Geometry and Hybridization of Atomic Orbitals 414

Intermolecular Forces and Liquids and Solids 467

Physical Properties of Solutions 520

Chemical Kinetics 564

Chemical Equilibrium 623

Acids and Bases 668

Acid-Base Equilibria and Solubility Equilibria 722

Entropy, Free Energy, and Equilibrium 778

Electrochemistry 814

Nuclear Chemistry 864

Chemistry in the Atmosphere 902

Metallurgy and the Chemistry of Metals 932

Nonmetallic Elements and Their Compounds 958

Transition Metals Chemistry and Coordination Compounds 996

Organic Chemistry 1027

Index

D

M

Q

R

T

U

V

W

X

Y

Z