Organic Chemistry

SEVENTH EDITION

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Brief Table of Contents

Contents

New material on how to draw Lewis structures and how to predict bond angles and the orbitals used in bonding.

New chapter on Acid/Base Chemistry reinforces fundamental concepts.

New tutorial on Acid/Base Chemistry provides students with opportunities to self assess and develop foundational skills needed for future topics in organic chemistry.

Enhanced by MasteringChemistry®

- Acids and Bases: Equilibrium Basics
- Acids and Bases: Factors Influencing Acid Strength
- Acids and Bases: pH Influence on Acid and Base Structure

Introduces a new feature, "Organizing What We Know," which highlights how all organic compounds can be divided into families and all members of a family react in the *same way*. Furthermore, each family can be put into one of four groups and all the families in a group react in *similar ways*.

New tutorial gives students practice drawing curved arrows.

Enhanced by MasteringChemistry®

- An Exercise in Drawing Curved Arrows: Basics of Pushing Electrons
- An Exercise in Drawing Curved Arrows: Predicting Electron Movement
- An Exercise in Drawing Curved Arrows: Interpreting Electron Movement

Alkoxymercuration was removed since it is now rarely used because of toxicity concerns. Ozonolysis has been added as has using 9-BBN for hydroboration and MCPBA for epoxidation.

Discussion of reactivity has been reorganized and clarified. The mechanism for keto-enol interconversion has been added.

Discussion of aromaticity has been added to allow this concept to be carried throughout the text starting at an earlier point.

New tutorial gives students practice drawing resonance contributors.

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- Drawing Resonance Contributors: Moving π Electrons
- Drawing Resonance Contributors: Predicting Contributor Structure
- Drawing Resonance Contributors: Substituted Benzene Compounds

Rewritten to incorporate the new finding that secondary alkyl halides do not undergo S_N1 reactions.

Rewritten to incorporate the new finding that secondary alkyl halides do not undergo E1 reactions.

Hypochlorous acid introduced as an alternative to toxic-chromuium-containing compounds.

Discussion of palladium-catalyzed coupling reactions and their mechanisms has been expanded. Solved problems and problem-solving strategies were added to facilitate understanding.

There are now 50 additional spectroscopy problems in the *Study Guide and Solutions Manual.*

Acid anhydrides are carboxylic acid derivatives but they don't look like carboxylic acids. Anhydrides, therefore, were moved to the end of the chapter to allow students to focus on the similarities between carboxylic acids, acyl chlorides, esters, and amides. Acid anhydrides are now better placed since they come just before phosphoric acid anhydrides.

Enhanced discussion of reduction reactions. Added a discussion of chemoselective reactions.

Streamlined the discussion of both the reactions of enolate ions and crossed aldol additions and condensations. Added new examples of retrosynthetic analysis.

New tutorial on synthesis and retrosynthetic analysis including two examples of a multistep synthesis from the literature.

Enhanced by MasteringChemistry®
- Synthesis and Retrosynthetic Analysis: Functional Groups
- Synthesis and Retrosynthetic Analysis: Carbon Chain
- Synthesis and Retrosynthetic Analysis: Retrosynthesis of 2-Pentanone Using Reactions of Carbonyl Compounds

The reactions of aromatic heterocycles now follows the reactions of other aromatic compounds.

A new discussion on diseases caused by protein misfolding.

Revised to emphasize the connection between the organic reactions that occur in test tubes with the organic reactions that occur in cells.

Added the mechanism for the conversion of succinate to fumarate.

New coverage of organic reactions that occur in gluconeogenesis and discussions of thermodynamic control and the regulation of metabolic pathways. Revised to emphasize the connection between the organic reactions that occur in test tubes with those that occur in cells. New section on terpene biosynthesis.

New section on antiviral drugs and the chemical reasons for their antiviral activity. Recently published information about the function of segments of DNA that were thought to contain no information.