



Organic Chemistry, 11th ed.
Carey, Giuliano, Allison, and Bane

Hardcover / 2020©
ISBN: 9781260148923 / 1260148920

General Revisions:

Several new chapter openers have been created for this edition. Chapter openers are designed to peak student interest and understanding of the importance of the chapter's concepts.

The inclusion of kcal and Angstrom units were added for consistency throughout the text, problems, and figures to aid student understanding.

Color has also been added and revised for consistency in many areas to help students better understand three-dimensional structure, stereochemistry, and reactions.

New sample Problems and illustrations have also been added throughout the new edition to clarify topics and enhance the student learning experience.

Chapter-Specific Revisions

- A new section 2.10 Bonding in Water and Ammonia: Hybridization of Oxygen and Nitrogen was added in chapter 2.
- In the stereochemistry chapter, enantiomeric ratio has been introduced in Section 4.4.
- New art was added to Chapters 6, 11, and 12, that reinforces the SN2 reaction. Figure 6.2 includes electrostatic potential maps of hydroxide and methyl bromide and Figure 6.3 shows a revised figure of the molecular orbital description. The revised art in Sections 11.2 and 12.9, for allyl and benzyl MO systems, tie together alkyl halides, SN2, and MO theory.

- In Chapter 7, Section 7.2 was revised to introduce molecular orbitals of ethene so when students study π molecular orbitals in allyl intermediates and butadiene in Chapter 10 the topic should come as a natural extension. These revisions are intended to aid and reinforce student understanding of the theories of chemical bonding. The structure and reactivity concept of using sterically hindered bases giving the less substituted alkene in higher yields was added to the E2 discussion in Sections 7.14 and 7.15.
- The addition of electrostatic potential maps to support carbanion stability trends was added in Figure 9.4 of the alkyne chapter.
- Section 11.15 includes a new boxed essay on “Pericyclic Reactions in Chemical Biology.”
- A new section 15.9 Carbenes and Carbenoids and the mechanism of cyclopropanation have been added in Chapter 15, as it draws a useful comparison to the mechanism of peracid epoxidation. Also, the discussion of carbene structure complements material on carbocations, radicals, and anions elsewhere in the textbook. A new Descriptive Passage and Interpretive Problems “Allyl Iridium Reagents” have been added at the end of Chapter 15, keeping with the theme of sustainable organic chemistry.
- Section 19.16 includes a new boxed essay “Enzymatic Decarboxylation.”
- Chapter 21 includes two new sections: 21.1 Aldehyde, Ketone, and Ester Enolates and 21.8 Some Chemical and Stereochemical Consequences of Enolization. This new organization improves topic flow, allowing instructors to cover the aldol reaction during the first lecture on enolates, and adds to the emphasis on enolates, the main topic of the chapter. A new Descriptive Passage and Interpretive Problems on the Knoevenagel Reaction have also been added to Chapter 21.
- Chapter 23 Phenols was eliminated for the 11th Edition and its contents redistributed as follows, enhancing the topics in other chapters:
 - Phenol acidity has been moved to Chapter 1, along with new problems, to enhance the discussion of the use of resonance in providing stability to the conjugate base.
 - Electrophilic aromatic substitution of phenols, along with new problems, are now covered in chapter 13.
 - Cleavage of aryl ethers by hydrogen halides is covered in chapter 17 and new problems have also been added there.
- The coverage of biochemistry has been extensively updated and revised for the 11th Edition:
 - Chapter 23 includes new text and problems on reducing sugars and updated material on oligosaccharide synthesis and glycobiology. Section 23.20 includes a new boxed essay “Oligosaccharides in Infectious Disease.”
 - Chapter 24 includes updated coverage and illustrations for liposomes used in drug delivery and lipid rafts and membrane organization.
 - Chapter 25 has been reorganized and updated. Changes include moving the presentation of biochemical reactions of amino acids to later in the chapter (Section 25.21), after a revised presentation of enzymology (Section 25.20). Protein sequencing has been revised and organized to allow instructors greater flexibility with this material. Protein sequencing using mass spectrometry is added in a new section (Section 25.12 Mass Spectrometry of Peptides and Proteins). Chemical synthesis of proteins emphasizes the importance of solid phase synthesis over solution methods, and orthogonal amine protecting groups are introduced (Sections 25.13- 25.17).
 - Chapter 26 includes revised coverage and new illustrations for purines and pyrimidines; the importance of tautomers rather than aromaticity is emphasized. The Bioenergetics sections (Sections 26.4-26.5) have been revised for clarity. Distinctions in the chemical properties of RNA and DNA are detailed in a new section (Section 26.7 Phosphoric Acid Esters). Updated coverage of RNA includes important new discoveries such as RNAi (Section 26.11

Ribonucleic Acids). New illustrations and an example of next-generation sequencing have been added to Section 26.17 DNA Sequencing.

- Chapter 27 also includes a new essay on Bakelite and the historical development of polymers.