

Advanced Organic Chemistry

SECOND
EDITION

Part A: Structure and Mechanisms

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PART A: Structure and Mechanisms
PART B: Reactions and Synthesis

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Part A: Structure and Mechanisms

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Preface to the Second Edition

The purpose of this edition is the same as that of the first edition, that is, to provide a deeper understanding of the *structures* of organic compounds and the *mechanisms* of organic reactions. The level is aimed at advanced undergraduates and beginning graduate students. Our goal is to solidify the student's understanding of basic concepts provided in an introduction to organic chemistry and to fill in much more information and detail, including quantitative information, than can be presented in the first course in organic chemistry.

The first three chapters consider the fundamental topics of bonding theory, stereochemistry, and conformation. Chapter 4 discusses the techniques that are used to study and characterize reaction mechanisms. The remaining chapters consider basic reaction types with a broad coverage of substituent effects and stereochemistry being provided so that each reaction can be described in good, if not entirely complete, detail.

The organization is very similar to the first edition with only a relative shift in emphasis having been made. The major change is the more general application of qualitative molecular orbital theory in presenting the structural basis of substituent and stereoelectronic effects. The primary research literature now uses molecular orbital approaches very widely, while resonance theory serves as the primary tool for explanation of structural and substituent effects at the introductory level. Our intention is to illustrate the use of both types of interpretation, with the goal of facilitating the student's ability to understand and apply the molecular orbital concepts now widely in use.

As in the first edition, the specific reactions discussed have been chosen to illustrate a point and no effort has been made to trace the origin of a particular explanation or observation. Thus references to a particular example do not imply any indication of priority. We have also tried to cite references to reviews which will give readers the opportunity to consider specific reactions from a much more comprehensive and detailed point of view than is possible in this text.

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