Preface

The manner of teaching Organic Chemistry has changed somewhat since my days as a student in the early 1970s. Most notably, organic chemistry textbooks offer more and better descriptions of topics in related fields such as Biochemistry and Materials Science, the internet allows one to search for information about specific topics, and computer software is readily available for modeling chemical structures and reactions. The overall level of sophistication has also risen for the presentation of traditional themes such as stereochemistry, bonding, reaction mechanisms, spectroscopy, and synthesis.

In spite of these changes, however, the mastery of Organic Chemistry as a course of study still requires a sound knowledge of the principles of molecular structure and chemical reactivity, which are topics introduced in most General Chemistry courses. With such a back-ground, a student studying organic chemistry begins to focus on a more limited set of atomic building blocks, particularly of carbon and its elemental neighbors. And while the study of a smaller portion of the periodic table might be expected to be easily manageable, understanding organic chemistry can still seem overwhelming because of the diverse ways that this handful of elements can combine and interact. To learn organic chemistry, one must grasp the recurring patterns that correlate the presented facts.

Toward that end, this textbook organizes and discusses the patterns of chemical reactivity—which constitutes the majority of the subject matter—by combining information

about the structures of functional groups (the reactive portions of a molecule) with the reaction mechanisms (pathways of chemical reactions) that these functional groups undergo. This approach differs from the one presented in many other texts, which describe *every* type of reaction that can occur for a given functional group; each approach has its advantages and disadvantages. The one I have utilized here evolved from my objective to integrate discussions about biochemical processes with the types of reactions that are carried out in chemistry laboratories. With the use of two points of reference—structures *and* mechanisms—the similarities that associate biochemical and synthetic reactions can be appreciated more easily.

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