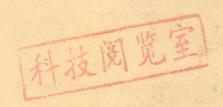


# Organic & Biochemistry





Frederick A. Bettelheim Jerry March

Adelphi University



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### Preface

At many universities and colleges students preparing for a professional career in health-related sciences take one semester of general chemistry together with other science majors. This introduction to the principles of chemistry is followed by a one-semester course introducing the basic elements of organic and biochemistry. The present book is intended as a text-book for such a course.

The book consists mainly of the last 17 chapters of our "Introduction to General, Organic and Biochemistry," 2nd edition, published in 1988. However, to make the new text self-containing, we have also included some portions of the first nine chapters of the longer book. These cover chemical bonding and shapes of molecules in Chapter 1 and acids and bases in Chapter 6 (before carboxylic acids are discussed in Chapter 7). For students who have recently taken general chemistry, these chapters can be recommended as reading assignments or omitted altogether, while for students who studied general chemistry some years ago, these chapters will provide a useful review.

Although the bulk of this book comes from our longer work, we have introduced some additional material. This includes descriptions of hybrid orbitals in Chapters 1 and 2 and some additional organic reactions, including halogenation of alkanes, oxidative cleavage of double bonds, reduction with LiAlH<sub>4</sub> or NaBH<sub>4</sub> and mechanisms. Furthermore, optical activity is now placed in a new chapter separate from the discussion of carbohydrates.

Beyond these major changes we also did some updating of the text where significant developments have occurred since 1987. This new material also required some new problems.

As with the second edition of our "Introduction to General, Organic and Biochemistry," the key features of this book are (a) the large number of applications of chemical principles to health-related problems presented in boxes, as well as in the text, (b) the employment of color not only to enhance the esthetics of the book but also as a pedagogic tool: for example, a color code is provided in the chapters on metabolism to make complex processes more comprehensible to students, and (c) a clear and concise style of writing that addresses the students directly.

### **Ancillaries**

This textbook is accompanied by a number of ancillary publications:

- 1. Lee and Bettelheim: Laboratory Manual to Accompany *Introduction to General, Organic & Biochemistry*, 2/e, which contains 18 experiments pertaining to organic and biochemistry.
- 2. Bettelheim and March: Instructor's Manual with test questions to Accompany *Introduction to Organic & Biochemistry*.
- 3. Lee and Bettelheim: Instructor's Manual to Accompany Laboratory Manual.
- 4. Scovell: Study Guide to Accompany Introduction to Organic & Biochemistry.
- 5. Overhead transparencies.

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We also wish to thank several of our colleagues at Adelphi University for their useful advice. These include Stephen Goldberg, Robert Halliday, Joseph Landesberg, Sung Moon, Donald Opalecky, Reuben Rudman, Charles Shopsis, Kevin Terrance and Stanley Windwer. We are grateful for the guidance of John Vondeling, Associate Publisher. We also thank Carol Bleistine and Sally Kusch for supervising the art, production and editing. J&R Technical Services and Tom Mallon transformed our crude drawings into pieces of art. We especially want to thank Beverly March and Charles D. Winters for their many excellent photographs.

F. A. Bettelheim and Jerry March Adelphi University

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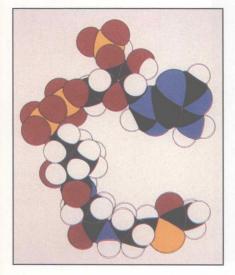
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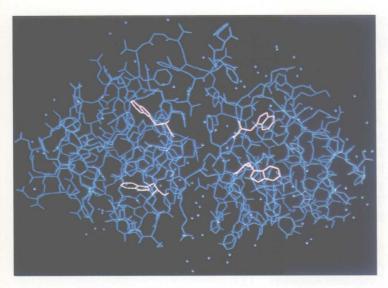


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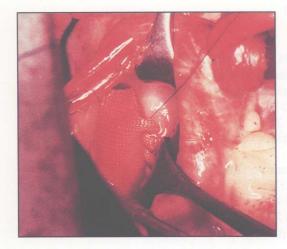
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 $J.\ Stewart\ Lowther, University\ of\ Puget\ Sound.$