Preface

This book is based on a graduate level course I taught at The Ohio State University in the autumn of 2006. The course consisted of twenty-eight 50-minute classes over a period of ten weeks (Chemistry 941). Students enrolled in the course were largely in their second or third years of graduate school. All had taken a three-quarter "organic reactions" sequence and a two-quarter "physical organic chemistry" sequence. I expected students to bring a sizeable toolbox of reactions, and a sound understanding of mechanistic organic chemistry, with them to the classroom. My goal was to introduce students to the field of organic synthesis with a focus on my own interest in natural products synthesis.

This book follows the sequence of topics I discussed in Chemistry 941. I have done little to modify the slides that I used as the basis of lectures. I have merely added text to accompany each slide. Several homework assignments were presented during the quarter, and I have added many more problems that I hope readers will find interesting and instructive.[a] An index has also been appended.[b]

My view of organic synthesis has naturally been influenced by my own experiences. I have been influenced by my teachers and, if they read this book, they will see themselves reflected on many of these pages. I have also been influenced by other books on the topic of organic synthesis, a few of which appear below:

- Ireland, R. E. *Organic Synthesis*, Prentice-Hall, 1969 (147 pages)

[a] A partial answer key is available to course instructors. Please contact sales@wspc.com

[b] The index within the book is abbreviated and only provides information found in the text pages (odd-numbered pages). A thorough index of the slides (even-numbered pages) with sections organized by compound, reagent type, reaction type, and subject is available online at http://www.worldscibooks.com/chemistry/7815.html

- Fleming, I. *Selected Organic Syntheses: A Guidebook for Organic Chemists*, John Wiley and Sons, 1973 (227 pages)
- Warren, S. *Organic Synthesis: The Disconnection Approach*, John Wiley and Sons, 1982 (391 pages)
- Wyatt, P.; Warren, S. *Organic Synthesis — Strategy and Control*, John Wiley and Sons, 2007 (909 pages)
- Corey, E. J.; Cheng, X-M. *The Logic of Chemical Synthesis*, John Wiley and Sons, 1989 (436 pages)
- Nicolaou, K. C.; Sorensen, E. J. *Classics in Total Synthesis: Targets Strategies, Methods*, VCH, 1996 (798 pages)
- Nicolaou, K. C.; Snyder, S. A. *Classics in Total Synthesis II: Targets, Strategies, Methods*, John Wiley and Sons, 2003 (560 pages)

I was most influenced by the Ireland and Fleming books (now out of print), because they were published at the time I was developing an interest in organic chemistry and organic synthesis. To those who have read the Ireland and Fleming books, their influence will be apparent in my selection of topics. Also, my selection of topics is simply a reflection of my own interests. In no way do I mean to slight the many chemists not cited herein who have made landmark contributions to the field of natural products synthesis.[c]

I have provided references on the slides for the papers that form the basis of this book.[d] These references are not repeated in the text, but additional references have been provided at points where I think they could be useful. The reader can always refer to the papers that form the basis of this book for additional details and citations. I have also tried to provide reaction yields when they were easily gleaned from the papers. I did not make any attempt to extract yield information from experimental data and have taken yields reported by authors at face value.

Throughout the text I will refer to the "slides" by topic and number. For example there are six slides associated with the introduction. When I refer to Introduction-1, the reader should look at the first slide associated with the introduction. Slides appear on left-hand (even) pages with the accompanying text located on adjacent right-hand (odd-numbered) pages. A Table of Contents is provided that should help the reader move from one topic to another in a non-linear manner. Now let us begin.

[c] For some compilations of syntheses that you might find interesting see: Anand, N.; Bindra, J. S.; Ranganathan, S. *Art in Organic Synthesis*, John Wiley and Sons, 1970 (427 pages). Bindra, J. S.; Bindra, R. *Creativity in Organic Synthesis: Volume 1*, Academic Press, Inc., 1975 (322 pages).

[d] A PowerPoint presentation of each chapter, with selected structures, bonds and comments highlighted in color, is available online at http://www.worldscibooks.com/chemistry/7815.html