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Modern Physical Organic Chemistry





Synopsis

This is the first modern textbook, written in the 21st century, to make explicit the many connections between physical organic chemistry and critical fields such as organometallic chemistry, materials chemistry, bioorganic chemistry, and biochemistry. In the latter part of the 20th century, the field of physical organic chemistry went through dramatic changes, with an increased emphasis on noncovalent interactions and their roles in molecular recognition, supramolecular chemistry, and biology; the development of new materials with novel structural features; and the use of computational methods. Contemporary chemists must be just as familiar with these newer fields as with the more established classical topics. This completely new landmark text is intended to bridge that gap. In addition to covering thoroughly the core areas of physical organic chemistry – structure and mechanism – the book will escort the practitioner of organic chemistry into a field that has been thoroughly updated . The foundations and applicabilities of modern computational methods are also developed. Written by two distinguished researchers in this field, Modern Physical Organic Chemistry can serve as a text for a year-long course targeted to advanced undergraduates or first-year graduate students, as well as for a variety of shorter courses on selected aspects of the field. It will also serve as a landmark new reference text, and as an introduction to many of the more advanced topics of interest to modern researchers. An accompanying Student Solutions Manual will become available.

Book Information

Hardcover: 1104 pages Publisher: University Science; illustrated edition edition (July 15, 2005) Language: English ISBN-10: 1891389319 ISBN-13: 978-1891389313 Product Dimensions: 8.9 x 2.2 x 11.1 inches Shipping Weight: 6 pounds (View shipping rates and policies) Average Customer Review: 4.8 out of 5 stars Â See all reviews (50 customer reviews) Best Sellers Rank: #80,931 in Books (See Top 100 in Books) #15 in Books > Science & Math > Chemistry > Physical & Theoretical > Physical Chemistry #104 in Books > Science & Math > Chemistry > Organic #254 in Books > Science &

Customer Reviews

Anslyn and Dougherty's is arguably the single most useful text, on any subject, available to

chemists today. Although physical organic chemistry could easily be viewed as a narrow, arcane subject, these authors demonstrate that this is far from the truth. Anslyn and Dougherty have done a marvelous job of presenting a truly unbelievable amount of material in a way that is not only approachable, but also guite detailed and comprehensive. It is often said that the more accessible texts are a mile wide and an inch deep. This text is a mile wide and a mile deep (not entirely surprising, considering it is also arguably the bulkiest text available to chemists today!). If you can think of it, you can probably find it in the index. I would add that this text has a fantastic, 20-page (!) index, something many of the older texts ought to take a lesson from. The best texts, in any discipline, do not teach anything outside of a practical context. Anslyn and Dougherty present a truly astonishing array of "Connections" boxes, one on almost every page, which explicate real examples from the literature of the section's principles being applied. The reader whose interest is piqued by a particular section will thus find several excellent starting places in the primary literature for further study. As many other reviewers have noted, this is a modern text that stresses interdisciplinary connections. As an example, the Felkin-Anh model of nucleophilic addition to carbonvls is presented as a practical example of the Curtin-Hammett principle. Although this connection may seem obvious to the initiated, it is not the kind of thing that the majority of texts (let alone professors!) emphasize. Nevertheless, discovering these connections is the only way a student will ever begin to think critically about a subject.

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