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Book Review

Elements of General, Organic, and Biological Chemistry (9th ed.) by John Holum

Reviewed by

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Elements of General, Organic, and Biological Chemistry by John Holum, 9th edition. 624 pp. ISBN 0-471-31006-9, $81.95.

This text is a condensed version of the more comprehensive *General, Organic, and Biological Chemistry* by the same author. We use this text in a one-semester course offered in both the fall and spring semesters. The course is designed for students in two-year health technologies programs such as nursing, dental hygiene, respiratory technology, physical therapy assistant, etc. Our enrollments have ranged from 15 to 44 students.

The length and depth of the text are somewhat more than can be done in a one-semester course, but really a bit less than that needed for a two-semester course. The target course is one semester at my school. This text gives you quite a bit to choose from for a one-semester course. Like most other textbooks designed for this course, it requires considerable selection and condensation of topics. I really feel that this is a problem with our course rather than with the book.

The text is reasonably thorough, and is roughly at an appropriate level for this type of course. For example, there is good (but necessarily simplified) coverage of neurotransmitters. This is important to dental hygiene students, who need to know something about the physiology of novocaine and may not learn it anywhere else. Principles usually covered in more comprehensive courses are well integrated into the application areas. The breadth of health application topics covered is impressive. The examples are well explained and the problems are well thought out, and there are very few errors in the solutions manual. The questions give an adequate coverage of the material in the text. Most of the questions are reasonably well constructed and can be answered with a good understanding of the text material.

The reading level of this text is a bit higher than I would like. This is a classic problem with textbooks for this type of course. It is difficult to cover the material required without using a higher reading level. Since students in the target course at my school are somewhat lower in reading ability than students in the general chemistry classes, there is always a problem with the reading level. Although this is really a problem with student ability and background, it is one that is not going away in the foreseeable future. Calculations are also a chronic problem with this course. This book is better than average in this area. The text is better illustrated than many I have seen. For the most part, the illustrations are not really "flashy," but are well designed to increase understanding of the book.

The chapter on elements and the atomic theory is fairly readable. It teaches the planetary atom, but does present s, p, d, and f orbitals as a special topic. Acid/base chemistry is well covered in Chapters 7 and 8. I like the way it is integrated into a later discussion (Chapter 18) of extracellular fluids.

Chapter 9, an introduction to organic chemistry and functional groups, is reasonably good, as far as it goes. This chapter is all the organic introduction material that I have time for in my class. In order to skip to the chapters on carbohydrates, lipids, and proteins, I have to condense considerable material from Chapters 10-13. For example, phenols are important as biocides and in understanding the chemistry of natural molecules such as tyrosine, but are only covered in Chapters 10 and 11. Students find this very unsettling. A broader Chapter 9 could alleviate these difficulties.

A test bank is available as hard copy and as computerized test preparation software. It is similar to most other test preparation software I have seen. I have the MS-DOS version. The program does not appear to be able to utilize expanded or extended memory. Even with Proprinter III emulation, it prints reasonably good graphics but requires nearly all the lower (640K) memory block to print them.