

<<普通化学原理与应用>>

图书基本信息

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前言

Know your audience." For this new edition, we have tried to follow this important advice to writers by attending more to the needs of those students who are taking a serious journey through the material. We also know that most general chemistry students have career interests not in chemistry, but in biology, medicine, engineering, environmental and agricultural sciences, and so on. And we understand that general chemistry will be the only college chemistry course for some students, and thus their only opportunity to learn some practical applications of chemistry. We have designed this book for all these students. Students of this text should have already studied some chemistry. But those with no prior background and those who could use a refresher will find that the early chapters develop fundamental concepts from the most elementary ideas. Students who do plan to become professional chemists will also find opportunities in the text to pursue their own special interests. The typical student may need help identifying and applying principles and visualizing their physical significance. The pedagogical features of this text are designed to provide this help. At the same time, we hope the text serves to sharpen student skills in problem solving and critical thinking. Thus, we have tried to strike the proper balances between principles and applications, qualitative and quantitative discussions, and rigor and simplification. Throughout the text we provide real-world examples to enhance the discussion. Examples relevant to the biological sciences, engineering, and the environmental sciences will be found in numerous places. This should help to bring the chemistry alive for these students, and help them understand its relevance to their career interests. It also, in most cases, should help them master core concepts.

Organization In this edition we retain the core organization of the sixth and seventh editions of this text, but with additional coverage of material, in depth and breadth, in a number of chapters. After a brief overview of core concepts in Chapter 1, we introduce atomic theory, including the periodic table, in Chapter 2. The periodic table is an extraordinarily useful tool, and presenting it early allows us to use the periodic table in new ways throughout the early chapters of the text. In Chapter 3 we introduce chemical compounds and their stoichiometry. Organic compounds are included in this presentation. The early introduction of organic compounds allows us to use organic examples throughout the book. Chapters 4 and 5 introduce chemical reactions. We discuss gases in Chapter 6, partly because they are familiar to students (which helps them build confidence), but also because some instructors prefer to cover this material early to better integrate their lecture and lab programs. Note that Chapter 6 can easily be deferred for coverage with the other states of matter, in Chapter 13. In Chapter 9 we delve more deeply into wave mechanics than in earlier editions, although we do so in a way that allows excision of this material at the instructor's discretion. As with previous editions, we have emphasized real-world chemistry in the final chapters that cover descriptive chemistry (Chapters 22-25), and we have tried to make this material easy to bring forward into earlier parts of the text. Moreover, many topics in these chapters can be covered selectively, without requiring the study of entire chapters. The text ends with heavily revised, comprehensive chapters on organic chemistry (Chapter 27) and biochemistry (Chapter 28).

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内容概要

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