

General Chemistry Principles And Modern Applications With Mastering Chemistry Gooner

The third edition of *Chemical Fate and Transport in the Environment*—winner of a 2015 Textbook Excellence Award (Texty) from The Text and Academic Authors Association—explains the fundamental principles of mass transport, chemical partitioning, and chemical/biological transformations in surface waters, in soil and groundwater, and in air. Each of these three major environmental media is introduced by descriptive overviews, followed by a presentation of the controlling physical, chemical, and biological processes. The text emphasizes intuitively based mathematical models for chemical transport and transformations in the environment, and serves both as a textbook for senior undergraduate and graduate courses in environmental science and engineering, and as a standard reference for environmental practitioners. Winner of a 2015 Texty Award from the Text and Academic Authors Association Includes many worked examples as well as extensive exercises at the end of each chapter Illustrates the interconnections and similarities among environmental media through its coverage of surface waters, the subsurface, and the atmosphere Written and organized concisely to map to a single-semester course Discusses and builds upon fundamental concepts, ensuring that the material is accessible to readers who do not have an extensive background in environmental science

Carefully crafted to provide a comprehensive overview of the chemistry of water in the environment, *Water Chemistry: Green Science and Technology of Nature's Most Renewable Resource* examines water issues within the broad framework of sustainability, an issue of increasing importance as the demands of Earth's human population threaten to overwhelm the planet's carrying capacity. Renowned environmental author Stanley Manahan provides more than just basic coverage of the chemistry of water. He relates the science and technology of this amazing substance to areas essential to sustainability science, including environmental and green chemistry, industrial ecology, and green (sustainable) science and technology. The inclusion of a separate chapter that comprehensively covers energy, including renewable and emerging sources, sets this book a part. Manahan explains how the hydrosphere relates to the geosphere, atmosphere, biosphere, and anthrosphere. His approach views Planet Earth as consisting of these five mutually interacting spheres. He covers biogeochemical cycles and the essential role of water in these basic cycles of materials. He also defines environmental chemistry and green chemistry, emphasizing water's role in the practice of each. Manahan highlights the role of the anthrosphere, that part of the environment constructed and operated by humans. He underscores its overwhelming influence on the environment and its pervasive effects on the hydrosphere. He also covers the essential role that water plays in the sustainable operation of the anthrosphere and how it can be maintained in a manner that will enable it to operate in harmony with the environment for generations to come. Written at an intermediate level, this is an appropriate text for the study of current affairs in environmental chemistry. It provides a review and grounding in basic and organic chemistry for those students who need it and also fills a niche for an aquatic chemistry book that relates the hydrosphere to the four other environmental spheres.

"[A] welcome addition to the reference materials necessary for the study of nurse anesthesia....The textbook is divided into logical, easy to use sections that cover all areas necessary for the practice of nurse anesthesia....This is a text that is easy to read and able to be incorporated into any nurse anesthesia chemistry and physics course. I would recommend this textbook to any program director." --Anthony Chipas, PhD, CRNA Division Director Anesthesia for Nurses Program Medical University of South Carolina At last. . . a combined chemistry &

physics nursing anesthesia text. This textbook offers combined coverage of chemistry and physics to help students learn the content needed to master the underlying principles of nursing anesthesia. Because many graduate nursing students are uncomfortable with chemistry and physics, this text presents only the specific content in chemistry and physics that relates to anesthesia. Written in a conversational, accessible style, the book teaches at a highly understandable level, so as to bridge the gap between what students recall from their undergraduate biochemistry and physics courses, and what they need to know as nurse anesthetists. The book contains many illustrations that demonstrate how the scientific concepts relate directly to clinical application in anesthesia. Chapters cover key topics relating to anesthesiology, including the basics of both chemistry and physics, fluids, a concentration on gas laws, states of matter, acids and bases, electrical circuits, radiation, and radioactivity. With this text, students will benefit from: A review of the math, chemistry, and physics basics that relate to clinical anesthesia A conversational presentation of just what students need to know, enabling a fast and complete mastery of clinically relevant scientific concepts Heavy use of illustrations throughout chapters to complement the text End-of-chapter review questions that help students assess their learning PowerPoint Slides available to qualified instructors.

Historically, the scientific method has been said to require proposing a theory, making a prediction of something not already known, testing the prediction, and giving up the theory (or substantially changing it) if it fails the test. A theory that leads to several successful predictions is more likely to be accepted than one that only explains what is already known but not understood. This process is widely treated as the conventional method of achieving scientific progress, and was used throughout the twentieth century as the standard route to discovery and experimentation. But does science really work this way? In Making 20th Century Science, Stephen G. Brush discusses this question, as it relates to the development of science throughout the last century. Answering this question requires both a philosophically and historically scientific approach, and Brush blends the two in order to take a close look at how scientific methodology has developed. Several cases from the history of modern physical and biological science are examined, including Mendeleev's Periodic Law, Kekule's structure for benzene, the light-quantum hypothesis, quantum mechanics, chromosome theory, and natural selection. In general it is found that theories are accepted for a combination of successful predictions and better explanations of old facts. Making 20th Century Science is a large-scale historical look at the implementation of the scientific method, and how scientific theories come to be accepted.

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This book comprehensively reviews drug stability and chemical kinetics: how external factors can influence the stability of drugs, and the reaction rates that trigger these effects. Explaining the important theoretical concepts of drug stability and chemical kinetics, and providing numerous examples in the form of illustrations, tables and calculations, the book helps readers gain a better understanding of the rates of reactions, order of reactions, types of degradation and how to prevent it, as well as types of stability studies. It also offers insights into the importance of the rate at which the drug is degraded and/or decomposed under various external and internal conditions, including temperature, pH, humidity and light. This book is intended for researchers, PhD students and scientists working in the field of pharmacy, pharmacology, pharmaceutical chemistry, medicinal chemistry and biopharmaceutics.

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rare books on the history and philosophy of chemistry and their importance in teaching this science. The book goes through all the main concepts of chemistry, and analyzes the historical and philosophical developments as well as their reflections in textbooks. Closest to my heart is Chapter 6, which is devoted to the chemical bond, the glue that holds together all matter in our earth. The chapter emphasizes the revolutionary impact of the concept of the 'covalent bond' on the chemical community and the great novelty of the idea that was conceived 11 years before quantum mechanics was able to offer the mechanism of electron pairing and covalent bonding. The author goes then to describe the emergence of two rival theories that explained the nature of the chemical bond in terms of quantum mechanics; these are valence bond (VB) and molecular orbital (MO) theories. He emphasizes the importance of having rival theories and interpretations in science and its advancement. He further argues that this VB-MO rivalry is still alive and together the two conceptual frames serve as the tool kit for thinking and doing chemistry in creative manners. The author surveys chemistry textbooks in the light of the how the books preserve or not the balance between the two theories in describing various chemical phenomena. This Talmudic approach of conceptual tension is a universal characteristic of any branch of evolving wisdom. As such, Mansoor's book would be of great utility for chemistry teachers to examine how can they become more effective teachers by recognizing the importance of conceptual tension". Sason Shaik Saeree K. and Louis P. Fiedler Chair in Chemistry Director, The Lise Meitner-Minerva Center for Computational Quantum Chemistry, The Hebrew University of Jerusalem, ISRAEL

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Long considered the standard for honors and high-level mainstream general chemistry courses, PRINCIPLES OF MODERN CHEMISTRY continues to set the standard as the most modern, rigorous, and chemically and mathematically accurate text on the market. This authoritative text features an "atoms first" approach and thoroughly revised chapters on Quantum Mechanics and Molecular Structure (Chapter 6), Electrochemistry (Chapter 17), and Molecular Spectroscopy and Photochemistry (Chapter 20). In addition, the text utilizes mathematically accurate and artistic atomic and molecular orbital art, and is student friendly without compromising its rigor. End-of-chapter study aids focus on only the most important key objectives, equations and concepts, making it easier for students to locate chapter content, while applications to a wide range of disciplines, such as biology, chemical engineering, biochemistry, and medicine deepen students' understanding of the relevance of chemistry beyond the classroom.

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The book has been written in simple language to help self study. The concepts have been explained with the help of equations and diagrams. The diagrams have been nicely labeled for clear understanding. Numerical examples have been solved with systematic steps. Solved and unsolved problems have been included. Experiments prescribed for engineering chemistry course have been included. theory and principle of each experiment have been explained in detail.

Experimental producers have been written in an step wise manner. Viva voice has been discussed at the end of each experiment. Important points have been emboldened.

Nanotechnology provides tools for creating functional materials, devices, and systems by controlling materials at the atomic and molecular scales and making use of novel properties and phenomena. Nanotechnology-enabled sensors find applications in several fields such as health and safety, medicine, process control and diagnostics. This book provides the reader with information on how nanotechnology enabled sensors are currently being used and how they will be used in the future in such diverse fields as communications, building and facilities, medicine, safety, and security, including both homeland defense and military operations.

Research in science education has recognized the importance of history and philosophy of science (HPS). Nature of science (NOS) is considered to be an essential part of HPS with important implications for teaching science. The role played by textbooks in developing students' informed conceptions of NOS has been a source of considerable interest for science educators. In some parts of the world, textbooks become the curriculum and determine to a great extent what is taught and learned in the classroom. Given this background and interest, this monograph has evaluated NOS in university level general chemistry textbooks published in U.S.A. Most textbooks in this study provided little insight with respect to the nine criteria used for evaluating NOS. Some of the textbooks, however, inevitably refer to HPS and thus provide guidelines for future textbooks. A few of the textbooks go into considerable detail to present the atomic models of Dalton, Thomson, Rutherford, Bohr and wave mechanical to illustrate the tentative nature of scientific theories --- an important NOS aspect. These results lead to the question: Are we teaching science as practiced by scientists? An answer to this question can help us to understand the importance of NOS, by providing students an HPS-based environment, so that they too (just like the scientists) feel the thrill and excitement of discovering new things. This monograph provides students and teachers guidelines for introducing various aspects of NOS, based on historical episodes.

The most trusted general chemistry text in Canada is back in a thoroughly revised 11th edition. General Chemistry: Principles and Modern Applications, is the most trusted book on the market recognized for its superior problems, lucid writing, and precision of argument and precise and detailed and treatment of the subject. The 11th edition offers enhanced hallmark features, new innovations and revised discussions that that respond to key market needs for detailed and modern treatment of organic chemistry, embracing the power of visual learning and conquering the challenges of effective problem solving and assessment. Note: You are purchasing a standalone product; MasteringChemistry does not come packaged with this content. Students, if interested in purchasing this title with MasteringChemistry, ask your

instructor for the correct package ISBN and Course ID. Instructors, contact your Pearson representative for more information. If you would like to purchase both the physical text and MasteringChemistry, search for: 0134097327 / 9780134097329 General Chemistry: Principles and Modern Applications Plus MasteringChemistry with Pearson eText -- Access Card Package, 11/e Package consists of: 0132931281 / 9780132931281 General Chemistry: Principles and Modern Applications 0133387917 / 9780133387919 Study Card for General Chemistry: Principles and Modern Applications 0133387801 / 9780133387803 MasteringChemistry with Pearson eText -- Valuepack Access Card -- for General Chemistry: Principles and Modern Applications

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General Chemistry: Principles and Modern Applications is recognized for its superior problems, lucid writing, and precision of argument. This updated and expanded edition retains the popular and innovative features of previous editions—including Feature Problems, follow-up Integrative and Practice Exercises to accompany every in-chapter Example, and Focus On application boxes, as well as new Keep in Mind marginal notes. Topics covered include atoms and the atomic theory, chemical compounds and reactions, gases, Thermochemistry, electrons in atoms, chemical bonding, liquids, solids, and intermolecular forces, chemical kinetics, principles of chemical equilibrium, acids and bases, electrochemistry, representative and transitional elements, and nuclear and organic chemistry. For individuals interested in a broad overview of chemical principles and applications.

"An excellent text, highly recommended." — Choice When it was first published, this first-year chemistry text revolutionized the teaching of

chemistry by presenting it in terms of unifying principles instead of as a body of unrelated facts. Those principles included modern theories of atomic and molecular structure, quantum mechanics, statistical mechanics, and thermodynamics. In addition, Dr. Pauling attempted to correlate the theories with descriptive chemistry, the observed properties of substances, to introduce the student to the multitude of chemical substances and their properties. In this extensively revised and updated third edition, the Nobel Prize-winning author maintains an excellent balance between theoretical and descriptive material, although the amount of descriptive chemistry has been decreased somewhat, and the presentation of the subject, especially in relation to the nonmetals, has been revised in such a way as to permit greater correlation with the electronic structure of atoms, especially electronegativity. The principles of quantum mechanics are discussed on the basis of the de Broglie wavelength of the electron. The quantized energy levels of a particle in a box are derived by means of a simple assumption about the relation of the de Broglie waves to the walls of the box. No attempt is made to solve the Schrödinger wave equation for other systems, but the wave functions of hydrogen-like electrons are presented and discussed in some detail, and the quantum states for other systems are also covered. Statistical mechanics is introduced before thermodynamics, and the discussion of thermodynamics is based on it. This arrangement reflects the author's belief that beginning students can understand statistical mechanics better than chemical thermodynamics. Aimed at first-year college students who plan to major in chemistry or closely related fields, the book is written in a logical, clear, and understandable style. In addition, many excellent figures are included, along with numerous problems and 75 pages of appendices covering such topics as symmetry of molecules and crystals, hybrid bond orbitals, and magnetic properties of substances.

What a great idea-an introductory chemistry text that connects students to the workplace of practicing chemists and chemical technicians! Tying chemistry fundamentals to the reality of industrial life, Chemistry: An Industry-Based Introduction with CD-ROM covers all the basic principles of chemistry including formulas and names, chemical bon

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PRINCIPLES OF MODERN CHEMISTRY has dominated the honors and high mainstream general chemistry courses and is considered the standard for the course. The fifth edition is a substantial revision that maintains the rigor of previous editions but reflects the exciting modern developments taking place in chemistry today. Authors David W. Oxtoby and H. P. Gillis provide a unique approach to learning chemical principles that emphasizes the total scientific process'from observation to application'placing general chemistry into a complete perspective for serious-minded science and engineering students. Chemical principles are illustrated by the use of modern materials, comparable to equipment found in the scientific industry. Students are therefore exposed to chemistry and its applications beyond the classroom. This text is perfect for those instructors who are looking for a more advanced general chemistry textbook.

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