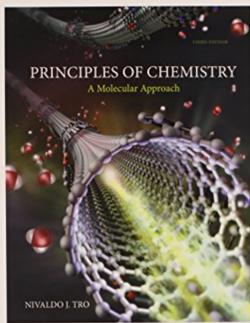


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Principles of Chemistry-Nivaldo J. Tro 2013 Adapted from Nivaldo J. Tro's best-selling general chemistry book, Principles of Chemistry: A Molecular Approach focuses exclusively on the core concepts of general chemistry without sacrificing depth or relevance. Tro's unprecedented two- and three-column problem-solving approach is used throughout to give students sufficient practice in this fundamental skill. A unique integration of macroscopic, molecular, and symbolic illustrations helps students to visualize the various dimensions of chemistry; Tro's engaging writing style captures student's attention with relevant applications. The Second Edition offers a wealth of new and revised problems, approximately 50 new conceptual connections, an updated art program throughout, and is available with MasteringChemistry®, the most advanced online tutorial and assessment program available. This package contains: Principles of Chemistry: A Molecular Approach, Second Edition

Principles of Chemistry-Nivaldo J. Tro 2015-01-08 NOTE: You are purchasing a standalone product; MasteringA&P does not come packaged with this content. If you would like to purchase both the physical text and MasteringA&P search for ISBN-10: 0321971167/ISBN-13: 9780321971166. That package includes ISBN-10: 0321971949/ISBN-13: 9 9780321971944 and ISBN-10: 0133890686/ISBN-13: 9780133890686. A relevant, problem-solving approach to chemistry The Third Edition of Principles of Chemistry: A Molecular Approach presents core concepts without sacrificing rigor, enabling students to make connections between chemistry and their lives or intended careers. Drawing upon his classroom experience as an award-winning educator, Professor Tro extends chemistry to the student's world by capturing student attention with examples of everyday processes and a captivating writing style. Throughout this student-friendly text, chemistry is presented visually through multi-level images that help students see the connections between the world around them (macroscopic), the atoms and molecules that compose the world (molecular), and the formulas they write down on paper (symbolic). The Third Edition improves upon the hallmark features of the text and adds new assets—Self Assessment Quizzes, Interactive Worked Examples, and Key Concept Videos—creating the best learning resource available for general chemistry students. Also Available with MasteringChemistry This title is also available with MasteringChemistry – an online homework, tutorial, and assessment program designed to work with this text to engage students and improve results. Within its structured environment, students practice what they learn, test their understanding, and pursue a personalized study plan that helps them better absorb course material and understand difficult concepts. 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.

Principles of Chemistry-Nivaldo J. Tro 2016-02-25 The most successful general chemistry textbook published in 30 years is now specifically written for Canadian students. This innovative, pedagogically driven text explains difficult concepts in a student-oriented manner. The book offers a rigorous and accessible treatment of general chemistry in the context of relevance. Chemistry is presented visually through multi-level images—macroscopic, molecular and symbolic representations—helping students see the connections among the formulas (symbolic), the world around them (macroscopic), and the atoms and molecules that make up the world (molecular). 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: 0134145062 / 9780134145068 Chemistry: A Molecular Approach, Second Canadian Edition Plus MasteringChemistry with Pearson eText -- Access Card Package Package consists of: 013398656X / 9780133986563 Chemistry: A Molecular Approach, Second Canadian Edition 0134194535 / 9780134194530 MasteringChemistry with Pearson eText -- Valuepack Access Card -- for Chemistry: A Molecular Approach, Second Canadian Edition

Laboratory Manual for Chemistry-Nivaldo J. Tro 2016-01-18 For courses in Chemistry Laboratory. With a focus on real-world applications and a conversational tone, this laboratory manual contains experiments written specifically to correspond with Chemistry: A Molecular Approach, Fourth Edition by Nivaldo J. Tro. Each experiment covers one or more topics discussed within a chapter of the textbook, with the dual goal of 1) helping students understand the underlying concepts covered in the lecture, and 2) presenting this material in a way that is interesting and exciting. This manual contains twenty-nine experiments with a focus on real world applications. Each experiment contains a set of pre-laboratory questions, an introduction, a step-by-step procedure (including safety information and a report section featuring post-laboratory questions). Additional features include a section on laboratory safety rules, an overview on general techniques and equipment, as well as a detailed tutorial on graphing data in Excel.

Chemistry-Nivaldo J. Tro 2016-02-25 The most successful general chemistry textbook published in 30 years is now specifically written for Canadian students. This innovative, pedagogically driven text explains difficult concepts in a student-oriented manner. The book offers a rigorous and accessible treatment of general chemistry in the context of relevance. Chemistry is presented visually through multi-level images—macroscopic, molecular and symbolic representations—helping students see the connections among the formulas (symbolic), the world around them (macroscopic), and the atoms and molecules that make up the world (molecular). KEY TOPICS: Units of Measurement for Physical and Chemical Change;Atoms and Elements; Molecules, Compounds, and Nomenclature;Chemical Reactions and Stoichiometry;Gases;Thermochemistry;The Quantum-Mechanical Model of the Atom;Periodic Properties of the Elements;Chemical Bonding I: Lewis Theory;Chemical Bonding II: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory;Liquids, Solids, and Intermolecular Forces;Solutions;Chemical Kinetics;Chemical Equilibrium;Acids and Bases;Aqueous Ionic Equilibrium;Gibbs Energy and Thermodynamics;Electrochemistry;Radioactivity and Nuclear Chemistry;Organic Chemistry I: Structures;Organic Chemistry II: Reactions;Biochemistry;Chemistry of the Nonmetals;Metals and Metallurgy;Transition Metals and Coordination Compounds MARKET: Appropriate for General Chemistry (2 - Semester) courses.

Chemistry Modeling-Hans-Dieter Höltje 2008-07-11 Written by experienced experts in molecular modeling, this books describes the basics to the extent that it is necessary if one wants to be able to reliably judge the results from molecular modeling calculations. Its main objective is the description of the various pitfalls to be avoided. Without unnecessary overhead it leads the reader from simple calculations on small molecules to the modeling of proteins and other relevant biomolecules. A textbook for beginners as well as an invaluable reference for all those dealing with molecular modeling in their daily work!

Computational Chemistry and Molecular Modeling-K. I. Ramachandran 2008-06-13 The gap between introductory level textbooks and highly specialized monographs is filled by this modern textbook. It provides in one comprehensive volume the in-depth theoretical background for molecular modeling and detailed descriptions of the applications in chemistry and related fields like drug design, molecular sciences, biomedical, polymer and materials engineering. Special chapters on basic mathematics and the use of respective software tools are included. Numerous numerical examples, exercises and explanatory illustrations as well as a web site with application tools (<http://www.amrita.edu/cen/cmm>) support the students and lecturers.

Chemistry-Nivaldo J. Tro 2019-02-25 This innovative, pedagogically driven text explains difficult concepts in a student-oriented manner. The book offers a rigorous and accessible treatment of general chemistry in the context of relevance. Chemistry is presented visually through multi-level images—macroscopic, molecular and symbolic representations—helping students see the connections among the formulas (symbolic), the world around them (macroscopic), and the atoms and molecules that make up the world (molecular). KEY TOPICS: Units of Measurement for Physical and Chemical Change;Atoms and Elements; Molecules, Compounds, and Nomenclature;Chemical Reactions and Stoichiometry;Gases;Thermochemistry;The Quantum-Mechanical Model of the Atom;Periodic Properties of the Elements;Chemical Bonding I: Lewis Theory;Chemical Bonding II: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory;Liquids, Solids, and Intermolecular Forces;Solutions;Chemical Kinetics;Chemical Equilibrium;Acids and Bases;Aqueous Ionic Equilibrium;Gibbs Energy and Thermodynamics;Electrochemistry;Radioactivity and Nuclear Chemistry;Organic Chemistry I: Structures;Organic Chemistry II: Reactions;Biochemistry;Chemistry of the Nonmetals;Metals and Metallurgy;Transition Metals and Coordination Compounds MARKET: Appropriate for General Chemistry (2 - Semester) courses.

Principles and Practices of Molecular Properties-Patrick Norman 2018-01-15 A comprehensive yet accessible exploration of quantum chemical methods for the determination of molecular properties of spectroscopic relevance Molecular properties can be probed both through experiment and simulation. This book bridges these two worlds, connecting the experimentalist's macroscopic view of responses of the electromagnetic field to the theoretician's microscopic description of the molecular responses. Comprehensive in scope, it also offers conceptual illustrations of molecular response theory by means of time-dependent simulations of simple systems. This important resource in physical chemistry offers: A journey in electrodynamicms from the molecular microscopic perspective to the conventional macroscopic viewpoint The construction of Hamiltonians that are appropriate for the quantum mechanical description of molecular properties Time- and frequency-domain perspectives of light-matter interactions and molecular responses of both electrons and nuclei An introduction to approximate state response theory that serves as an everyday tool for computational chemists A unified presentation of prominent molecular properties Principles and Practices of Molecular Properties: Theory, Modeling and Simulations is written by noted experts in the field. It is a guide for graduate students, postdoctoral researchers and professionals in academia and industry alike, providing a set of keys to the research literature.

Principles and Applications of Quantum Chemistry-V.P. Gupta 2015-10-15 Principles and Applications of Quantum Chemistry offers clear and simple coverage based on the author's extensive teaching at advanced universities around the globe. Where needed, derivations are detailed in an easy-to-follow manner so that you will understand the physical and mathematical aspects of quantum chemistry and molecular electronic structure. Building on this foundation, this book then explores applications, using illustrative examples to demonstrate the use of quantum chemical tools in research problems. Each chapter also uses innovative problems and bibliographic references to guide you, and throughout the book chapters cover important advances in the field including: Density functional theory (DFT) and time-dependent DFT (TD-DFT), characterization of chemical reactions, prediction of molecular geometry, molecular electrostatic potential, and quantum theory of atoms in molecules. Simplified mathematical content and derivations for reader understanding Useful overview of advances in the field such as Density Functional Theory (DFT) and Time-Dependent DFT (TD-DFT) Accessible level for students and researchers interested in the use of quantum chemistry tools

Principles of Organic Chemistry-Robert J. Ouellette 2015-02-13 Class-tested and thoughtfully designed for student engagement, Principles of Organic Chemistry provides the tools and foundations needed by students in a short course or one-semester class on the subject. This book does not dilute the material or rely on rote memorization. Rather, it focuses on the underlying principles in order to make accessible the science that underpins so much of our day-to-day lives, as well as present further study and practice in medical and scientific fields. This book provides context and structure for learning the fundamental principles of organic chemistry, enabling the reader to proceed from simple to complex examples in a systematic and logical way. Utilizing clear and consistently colored figures, Principles of Organic Chemistry begins by exploring the step-by-step processes (or mechanisms) by which reactions occur to create molecular structures. It then describes some of the many ways these reactions make new compounds, examined by functional groups and corresponding common reaction mechanisms. Throughout, this book includes biochemical and pharmaceutical examples with varying degrees of difficulty, with worked answers and without, as well as advanced topics in later chapters for optional coverage. Incorporates valuable and engaging applications of the content to biological and industrial uses Includes a wealth of useful figures and problems to support reader comprehension and study Provides a high quality chapter on stereochemistry as well as advanced topics such as synthetic polymers and spectroscopy for class customization

Comprehensive Supramolecular Chemistry II-George W. Gokel 2017-06-22 Comprehensive Supramolecular Chemistry II, Second Edition is a 'one-stop shop' that covers supramolecular chemistry, a field that originated from the work of researchers in organic, inorganic and physical chemistry, with some biological influence. The original edition was structured to reflect, in part, the origin of the field. However, in the past two decades, the field has changed a great deal as reflected in this new work that covers the general principles of supramolecular chemistry and molecular recognition, experimental and computational methods in supramolecular chemistry, supramolecular receptors, dynamic supramolecular chemistry, supramolecular engineering, crystallographic (engineered) assemblies, sensors, imaging agents, devices and the latest in nanotechnology. Each section begins with an introduction by an expert in the field, who offers an initial perspective on the development of the field. Each article begins with outlining basic concepts before moving on to more advanced material. Contains content that begins with the basics before moving on to more complex concepts, making it suitable for advanced undergraduates as well as academic researchers Focuses on application of the theory in practice, with particular focus on areas that have gained increasing importance in the 21st century, including nanomedicine, nanotechnology and medicinal chemistry Fully rewritten to make a completely up-to-date reference work that covers all the major advances that have taken place since the First Edition published in 1996

Basic Principles and Techniques of Molecular Quantum Mechanics-Ralph E. Christoffersen 2013-03-08 New textbooks at all levels of chemistry appear with great regularity. Some fields like basic biochemistry, organic reaction mechanisms, and chemical thermody namics are well represented by many excellent texts, and new or revised editions are published sufficiently often to keep up with progress in research. However, some areas of chemistry, especially many of those taught at the graduate level, suffer from a real lack of up-to-date textbooks. The most serious needs occur in fields that are rapidly changing. Textbooks in these subjects usually have to be written by scientists actually involved in the research which is advancing the field. It is not often easy to persuade such individuals to set time aside to help spread the knowledge they have accumulated. Our goal, in this series, is to pinpoint areas of chemistry where recent progress has outpaced what is covered in any available textbooks, and then seek out and persuade experts in these fields to produce relatively concise but instructive introductions to their fields. These should serve the needs of one semester or one quarter graduate courses in chemistry and biochemistry. In some cases, the availability of texts in active research areas should help stimulate the creation of new courses. New York, New York CHARLES R. CANTOR Preface This book is not a traditional quantum chemistry textbook. Instead, it represents a concept that has evolved from teaching graduate courses in quantum chemistry over a number of years, and encountering students with diverse backgrounds.

Chemistry-Bruce Averill 2007 Emphasises on contemporary applications and an intuitive problem-solving approach that helps students discover the exciting potential of chemical science. This book incorporates fresh applications from the three major areas of modern research: materials, environmental chemistry, and biological science.

Molecular Diversity and Combinatorial Chemistry-Michael C. Pirrung 2004-10-31 Written for advanced undergraduate and graduate students, this textbook makes the main concepts of combinatorial chemistry accessible to the non-specialist.

Molecular Modelling-Andrew R. Leach 2001 This book provides a detailed description of the techniques employed in molecular modeling and computational chemistry. The first part of the book covers the two major methods used to describe the interactions within a system (quantum mechanics and molecular mechanics). The second part then deals with techniques that use such energy models, including energy minimization, molecular dynamics, Monte Carlo simulations and conformational analysis. The author also discusses the use of more advanced modeling techniques such as the calculation of free energies and the simulation of chemical reactions. In addition he considers aspects of both chemoinformatics and bioinformatics and techniques that can be used to design new molecules with specific properties. Copyright © Libri GmbH. All rights reserved.

Principles of General Chemistry-Martin Silberberg 2012-01-17

Molecular Fluorescence-Bernard Valeur 2013-03-27 This second edition of the well-established bestseller is completely updated and revised with approximately 30 % additional material, including two new chapters on applications, which has seen the most significant developments. The comprehensive overview written at an introductory level covers fundamental aspects, principles of instrumentation and practical applications, while providing many valuable tips. For photochemists and photophysicists, physical chemists, molecular physicists, biophysicists, biochemists and biologists, lecturers and students of chemistry, physics, and biology.

The Practice of Medicinal Chemistry-Camille Georges Wermuth 2015-07-01 The Practice of Medicinal Chemistry, Fourth Edition provides a practical and comprehensive overview of the daily issues facing pharmaceutical researchers and chemists. In addition to its thorough treatment of basic medicinal chemistry principles, this updated edition has been revised to provide new and expanded coverage of the latest technologies and approaches in drug discovery. With topics like high content screening, scoring, docking, binding free energy calculations, polypharmacology, QSAR, chemical collections and databases, and much more, this book is the go-to-reference for all academic and pharmaceutical researchers who need a complete understanding of medicinal chemistry and its application to drug discovery

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and development. Includes updated and expanded material on systems biology, chemogenomics, computer-aided drug design, and other important recent advances in the field Incorporates extensive color figures, case studies, and practical examples to help users gain a further understanding of key concepts Provides high-quality content in a comprehensive manner, including contributions from international chapter authors to illustrate the global nature of medicinal chemistry and drug development research An image bank is available for instructors at www.textbooks.elsevier.com

Molecular Sieves-Rosemarie Szostak 2013-06-29 From areport by a Lieutenant Colonel W.A. Ross (Chern. News, Nov.15, 1878, p. 236). Progress did not accelerate during the next 50 years. McBain, in his clas sic 1932 book, The Sorption oi Gases by So lids, devoted a chapter to sorp tion by chabasite, other zeolites, and permeable crystals. McBain remarked that "great interest attaches to the finding of Weigel and Steinhoff [0. Weigel and E. Steinhoff, Z. Krisi. . 61, 125 (1925){raquo}] that chabasite rapidly sorbs the vapors of water, methyl and ethyl alcohol and formie acid, whereas acetone, ether and benzene are largely excluded. The significance of their results was pointed out by McBain [J.W. McBain, Colloid. Symp. Mon., 20, 1 (1926){raquo}] and recognized by alliaier writers. It is evident that the partially dehydrated chabasite forms a nearly perfect molecular sieve or a semipermeable membrane of extremely regular structure ... ". While the significance of the above observation may have been recognized, it had little impact. Thus, an eminent pioneer in the synthesis and characterization of zeolites, Professor R.M. Barrer, spent nearly two dec ades (following his Ph. D. studies in the 1930s) developing a firm foundation for the rapid growth in scientific understanding and industrial applications of zeolites which has taken place during the last 30 years.

Principles of Molecular Mechanics-Katsunosuke Machida 1999-09-10 Principles of Molecular Mechanics Katsunosuke Machida Computational methods in chemistry have become increasingly important over recent years, and today many chemical laboratories in industry and academia are routinely applying the principles of molecular mechanics. This unique book, written from a theoretical chemist's point of view, brings together the mathematical and theoretical basis of calculations used in many molecular mechanics software tools, and will be indispensable for anyone using computational techniques. Principles of Molecular Mechanics contains a discussion of the fundamental analytical expressions used in calculating molecular properties from molecular force fields derived from a wide variety of mathematical and physical methods. Practical algorithms are outlined with an emphasis on speeding up calculation and saving computer memory, essential to researchers designing or improving computer programs for molecular mechanics. This book is essential reading for all researchers and graduate students working in molecular simulations, computational chemistry, theoretical chemistry and physical chemistry.

Principles and Applications of Molecular Diagnostics-Nader Rifai 2018-06-13 Principles and Applications of Molecular Diagnostics serves as a comprehensive guide for clinical laboratory professionals applying molecular technology to clinical diagnosis. The first half of the book covers principles and analytical concepts in molecular diagnostics such as genomes and variants, nucleic acids isolation and amplification methods, and measurement techniques, circulating tumor cells, and plasma DNA; the second half presents clinical applications of molecular diagnostics in genetic disease, infectious disease, hematopoietic malignancies, solid tumors, prenatal diagnosis, pharmacogenetics, and identity testing. A thorough yet succinct guide to using molecular testing technology, Principles and Applications of Molecular Diagnostics is an essential resource for laboratory professionals, biologists, chemists, pharmaceutical and biotech researchers, and manufacturers of molecular diagnostics kits and instrumtents. Explains the principles and tools of molecular biology Describes standard and state-of-the-art molecular techniques for obtaining qualitative and quantitative results Provides a detailed description of current molecular applications used to solve diagnostics tasks

Handbook of Molecular Descriptors-Roberto Todeschini 2008-07-11 Quantitative studies on structure-activity and structure-property relationships are powerful tools in directed drug research. In recent years, various strategies have been developed to characterize and classify structural patterns by means of molecular descriptors. It has become possible not only to assess diversities or similarities of structure databases, but molecular descriptors also facilitate the identification of potential bioactive molecules from the rapidly increasing number of compound libraries. They even allow for a controlled de-novo design of new lead structures. This is the most comprehensive collection of molecular descriptors and presents a detailed review from the origins of this research field up to present day. This practically oriented reference book gives a thorough overview of the different molecular descriptors representations and their corresponding molecular descriptors. All descriptors are listed with their definition, symbols and labels, formulas, some numerical examples, data and molecular graphs, while numerous figures and tables aid comprehension of the definitions. Cross-references throughout, a list of acronyms and notations allow easy access to the information needed to solve a specific research problem. Examples of descriptor calculations along with tables of descriptor values for a set of selected reference compounds and an up-to-date reference list add to the practical value of the book, making it an invaluable guide for all those dealing with bioactive molecules as well as for researchers.

Physical Chemistry: A Molecular Approach-Donald A. McQuarrie 1997-08-20 Emphasizes a molecular approach to physical chemistry, discussing principles of quantum mechanics first and then using those ideas in development of thermodynamics and kinetics. Chapters on quantum subjects are interspersed with ten math chapters reviewing mathematical topics used in subsequent chapters. Includes material on current physical chemical research, with chapters on computational quantum chemistry, group theory, NMR spectroscopy, and lasers. Units and symbols used in the text follow IUPAC recommendations. Includes exercises. Annotation copyrighted by Book News, Inc., Portland, OR

Basic principles of organic chemistry-John D. Roberts 1979

Fundamental Principles of Molecular Modeling-Anton Amann 2013-06-29 Molecular similarity has always been an important conceptual tool of chemists, yet systematic approaches to molecular similarity problems have only recently been recognized as a major contributor to our understanding of molecular properties. Advanced approaches to molecular similarity analysis have their foundation in quantum similarity measures, and are important direct or indirect contributors to some of the predictive theoretical, computational, and also experimental methods of modern chemistry. This volume provides a survey of the foundations and the contemporary mathematical and computational methodologies of molecular similarity approaches, where special emphasis is given to applications of similarity studies to a range of practical and industrially significant fields, such as pharmaceutical drug design. The authors of individual chapters are leading experts in various sub-fields of molecular similarity analysis and the related fundamental theoretical chemistry topics, as well as the relevant computational and experimental methodologies. Whereas in each chapter the emphasis is placed on a different area, nevertheless, the overall coverage and the wide scope of the book provides the reader with a general yet sufficiently detailed description that may serve as a good starting point for new studies and applications of molecular similarity approaches. The editors of this volume are grateful to the authors for their contributions, and hope that the readers will find this book a useful and motivating source of information in the rapidly growing field of molecular similarity analysis.

Principles of Organic Synthesis, 3rd Edition-Richard O.C. Norman 1993-09-16 This book is designed for those who have had no more than a brief introduction to organic chemistry and who require a broad understanding of the subject. The book is in two parts. In Part I, reaction mechanism is set in its wider context of the basic principles and concepts that underlie chemical reactions: chemical thermodynamics, structural theory, theories of reaction kinetics, mechanism itself and stereochemistry. In Part II these principles and concepts are applied to the formation of particular types of bonds, groupings, and compounds. The final chapter in Part II describes the planning and detailed execution of the multi-step syntheses of several complex, naturally occurring compounds.

Chemometric Methods in Molecular Design-Han van de Waterbeemd 2008-07-11 The statistical analysis of experimental and theoretical data lies at the heart of modern drug design. This practice-oriented handbook is a comprehensive account of modern chemometric methods in molecular design. It presents strategies for making more rational choices in the planning of syntheses, and describes techniques for analyzing biological and chemical data. Written by the world's experts, it provides in-depth information on * molecular concepts * experimental design in the planning of syntheses * multivariate analysis of chemical and biological data * statistical validation of QSAR results An additional benefit: the book contains a critical survey of commercially available software packages both for statistical analysis as well as for special applications. Industrial and academic researches in medicinal chemistry and organic chemistry will value this book as a useful source of information for their daily work. Also available: Advanced Computer-Assisted Techniques in Drug Discovery, edited by H. van de Waterbeemd

Molecular Imprinting-Lei Ye 2016-04-19 Molecular imprinting is one of the most efficient methods to fabricate functional polymer structures with pre-defined molecular recognition selectivity. Molecularly imprinted polymers (MIPs) have been used as antibody and enzyme mimics in a large number of applications. The outstanding stability and straightforward preparation make MIPs ideal substitutes for biologically derived molecular recognition materials, especially for development of affinity separation systems, chemical sensors and high selectivity catalysts. New MIP materials are being increasingly applied to solve challenging problems in environmental sciences, food safety control, biotechnology and medical diagnostics. Development in molecular imprinting research over the past decade has enabled tailor-designed molecular recognition sites to be created in synthetic materials with physical dimensions in the micro- and nano-regime. The new breakthroughs in MIP synthesis/fabrication have brought in many unprecedented functions of the micro- and nano-structured polymers. The aim of this review volume is to introduce to the readers the new developments in molecularly imprinted micro- and nano-structures, and the new applications that have been made possible with the new generation of imprinted materials.

Modern Molecular Photochemistry-Nicholas J. Turro 1991 During the last two decades the photochemistry of organic molecules has grown into an important and pervasive branch of organic chemistry. In Modern Molecular Photochemistry, the author brings students up to date with the advances in this field - the development of the theory of photoreactions, the utilization of photoreactions in synthetic sequences, and the advancement of powerful laser techniques to study the mechanisms of photoreactions.

Principles of Organic Nomenclature-G. J. Leigh 2011 Aimed at pre-university and undergraduate students, this volume surveys the current IUPAC nomenclature recommendations in organic, inorganic and macromolecular chemistry.

Principles of Biology-Robert Brooker 2014-01-10 Principles of Biology is reflective of the shift taking place in the majors biology course from large and detail rich to short and conceptual. A succinct and inviting text focused on central concepts, Principles of Biology helps students connect fundamental principles while challenging them to develop and hone critical thinking skills. Based on recommendations from the AAAS Vision and Change Report, content has been streamlined to assist students in connecting broad themes and key ideas across biology. Beginning in Chapter 1, twelve principles of biology are introduced and revisited throughout the text to help students understand stay focused on core ideas. New BioConnections features and Check Your Understanding questions ask students to be self-aware learners, analyzing what they're learning and making connections. To help students understand the key theme in biology - evolution - new Evolutionary Connections features reveal the ways in which the theory of evolution connects and informs our studies. New Quantitative Reasoning skills boxes encourage students to focus on developing reasoning and critical thinking skills.

Principles of Molecular Recognition-A.D. Buckingham 1993-09-30 The importance of molecular recognition in chemistry and biology is reflected in a recent upsurge in relevant research, promoted in particular by high-profile initiatives in this area in Europe, the USA and Japan. Although molecular recognition is necessarily microscopic in origin, its consequences are de facto macroscopic. Accordingly, a text that starts with intermolecular interactions between simple molecules and builds to a discussion of molecular recognition involving larger scale systems is timely. This book was planned with such a development in mind. The book begins with an elementary but rigorous account of the various types of forces between molecules. Chapter 2 is concerned with the hydrogen bond between pairs of simple molecules in the gas phase, with particular reference to the preferred relative orientation of the pair and the ease with which this can be distorted. This microscopic view continues in chapter 3 wherein the nature of interactions between solute molecules and solvents or between two or more solutes is examined from the experimental standpoint, with various types of spectroscopy providing the probe of the nature of the interactions. Molecular recognition is central to the catalysis of chemical reactions, especially when bonds are to be broken and formed under the severe con strain that a specific configuration is to result, as in the production of enan tiotopically pure compounds. This important topic is considered in chapter 4.

Principles of Chemistry: A Molecular Approach, Global Edition-Nivaldo J. Tro 2015-08-11 For two-semester courses in General Chemistry. A relevant, problem-solving approach to chemistry The Third Edition of Principles of Chemistry: A Molecular Approach presents core concepts without sacrificing rigor, enabling students to make connections between chemistry and their lives or intended careers. Drawing upon his classroom experience as an award-winning educator, Professor Tro extends chemistry to the student's world by capturing student attention with examples of everyday processes and a captivating writing style. Throughout this student-friendly text, chemistry is presented visually through multi-level images that help students see the connections between the world around them (macroscopic), the atoms and molecules that compose the world (molecular), and the formulas they write down on paper (symbolic). The Third Edition improves upon the hallmark features of the text and adds new assets—Self Assessment Quizzes, Interactive Worked Examples, and Key Concept Videos—creating the best learning resource available for general chemistry students. MasteringChemistry not included. Students, if MasteringChemistry is a recommended/mandatory component of the course, please ask your instructor for the correct ISBN and course ID. MasteringChemistry should only be purchased when required by an instructor. Instructors, contact your Pearson representative for more information. MasteringChemistry should only be purchased when required by an instructor. Please be sure you have the correct ISBN and Course ID. Instructors, contact your Pearson representative for more information.

Organic and Molecular Electronics-Michael C. Petty 2019-01-04 An introduction to the interdisciplinary subject of molecular electronics, revised and updated The revised second edition of Organic and Molecular Electronics offers a guide to the fabrication and application of a wide range of electronic devices based around organic materials and low-cost technologies. Since the publication of the first edition, organic electronics has greatly progressed, as evidenced by the myriad companies that have been established to explore the new possibilities. The text contains an introduction into the physics and chemistry of organic materials, and includes a discussion of the means to process the materials into a form (in most cases, a thin film) where they can be exploited in electronic and optoelectronic devices. The text covers the areas of application and potential application that range from chemical and biochemical sensors to plastic light emitting displays. The updated second edition reflects the recent progress in both organic and molecular electronics and - Offers an accessible resource for a wide range of readers Contains a comprehensive text that covers topics including electrical conductivity, optical phenomena, electroactive organic compounds, tools for molecular electronics and much more Includes illustrative examples based on the most recent research Presents problems at the end of each chapter to help reinforce key points Written mainly for engineering students, Organic and Molecular Electronics. From Principles to Practice provides an updated introduction to the interdisciplinary subjects of organic electronics and molecular electronics with detailed examples of applications.

Chemistry-Edward J. Neth 2016-06-07 "Chemistry: Atoms First is a peer-reviewed, openly licensed introductory textbook produced through a collaborative publishing partnership between OpenStax and the University of Connecticut and UConn Undergraduate Student Government Association. This title is an adaptation of the OpenStax Chemistry text and covers scope and sequence requirements of the two-semester general chemistry course. Reordered to fit an atoms first approach, this title introduces atomic and molecular structure much earlier than the traditional approach, delaying the introduction of more abstract material so students have time to acclimate to the study of chemistry. Chemistry: Atoms First also provides a basis for understanding the application of quantitative principles to the chemistry that underlies the entire course."--Open Textbook Library.

Green Chemistry-Hosam El-Din M. Saleh 2018-02-28 To an increasing extent, "green chemistry" is a new chemical and engineering approach of chemistry and engineering, dedicated to make manufacturing processes and our world as a whole more sustainable world with a growing tendency. "Green chemistry" approaches are based on ecofriendly technologies, aiming to reduce or eliminate the use of solvents, or render them efficient and safer. Moreover, this scientific field is devoted to reduction or elimination of prevailing environmental and health threats, which typically accompany chemical products and traditional processes. The present book "Green Chemistry" contains 9 selected chapters, starting with a general introductory chapter on "green chemistry," and covers many recent applications and developments based on the principles of "green chemistry." This book is considered the appropriate way to communicate the advances in green materials and their applications to the scientific community. Chemists, scientists and researchers from related areas, and undergraduates involved in environmental issues and interested in approaches to improve the quality of life could find an inspiring and effective guide by reading this book.

Electroanalytical Chemistry-Gary A. Mabbott 2020-01-27 Provides a strong foundation in electrochemical principles and best practices Written for undergraduate majors in chemistry and chemical engineering, this book teaches the basic principles of electroanalytical chemistry and illustrates best practices through the use of case studies of organic reactions and catalysis using voltammetric methods and of the measurement of clinical and environmental analytes by potentiometric techniques. It provides insight beyond the field of analysis as students address problems arising in many areas of science and technology. The book also emphasizes electrochemical phenomena and conceptual models to help readers understand the influence of experimental conditions and the interpretation of results for common potentiometric and voltammetric methods. Electroanalytical Chemistry: Principles, Best Practices, and Case Studies begins by introducing some basic concepts in electrical phenomena. It then moves on to a chapter that examines the potentiometry of oxidation-reduction processes, followed by another on the potentiometry of ion selective electrodes. Other sections look at: applications of ion selective electrodes; controlled potential methods; case studies in controlled potential methods; and instrumentation. The book also features several appendixes covering: Ionic Strength, Activity and Activity Coefficients; The Nernst Equation; The Henderson Equation for Liquid Junction Potentials; Selected Standard Electrode Potentials; and The Nernst Equation Derivation. Introduces the principles of modern electrochemical sensors and instrumental chemical analysis using potentiometric and voltammetric methods Develops conceptual models underlying electrochemical phenomena and useful equations Illustrates best practice with short case studies of organic reaction mechanisms using voltammetry and quantitative analysis with ion selective electrodes Offers instructors the opportunity to select focus areas and tailor the book to their course by providing a collection of shorter texts, each dedicated to a single field Intended as one of a series of modules for teaching undergraduate courses in instrumental chemical analysis Electroanalytical Chemistry: Principles, Best Practices, and Case Studies is an ideal textbook for undergraduate majors in chemistry and chemical engineering taking instrumental analysis courses. It would

also benefit professional chemists who need an introduction to potentiometry or voltammetry.

Medicinal Chemistry-Thomas Nogrady 2005-08-11 Fully updated and rewritten by a basic scientist who is also a practicing physician, the third edition of this popular textbook remains comprehensive, authoritative and readable. Taking a receptor-based, target-centered approach, it presents the concepts central to the study of drug action in a logical, mechanistic way grounded on molecular and principles. Students of pharmacy, chemistry and pharmacology, as well as researchers interested in a better understanding of drug design, will find this book an invaluable resource. Starting with an overview of basic principles, Medicinal Chemistry examines the properties of drug molecules, the characteristics of drug receptors, and the nature of drug-receptor interactions. Then it systematically examines the various families of receptors involved in human disease and drug design. The first three classes of receptors are related to endogenous molecules: neurotransmitters, hormones and immunomodulators. Next, receptors associated with cellular organelles (mitochondria, cell nucleus), endogenous macromolecules (membrane proteins, cytoplasmic enzymes) and pathogens (viruses, bacteria) are examined. Through this evaluation of receptors, all the main types of human disease and all major categories of drugs are considered. There have been many changes in the third edition, including a new chapter on the immune system. Because of their increasingly prominent role in drug discovery, molecular modeling techniques, high throughput screening, neuropharmacology and genetics/genomics are given much more attention. The chapter on hormonal therapies has been thoroughly updated and re-organized. Emerging enzyme targets in drug design (e.g. kinases, caspases) are discussed, and recent information on voltage-gated and ligand-gated ion channels has been incorporated. The sections on antihypertensive, antiviral, antibacterial, anti-inflammatory, antiarrhythmic, and anticancer drugs, as well as treatments for hyperlipidemia and peptic ulcer, have been substantially expanded. One new feature will enhance the book's appeal to all readers: clinical-molecular interface sections that facilitate understanding of the treatment of human disease at a molecular level.

Modern Coordination Chemistry-Neil Winterton 2007-10-31 Coordination chemistry, as we know it today, has been shaped by major figures from the past, one of whom was Joseph Chatt. Beginning with a description of Chatt's career presented by co-workers, contemporaries and students, this fascinating book then goes on to show how many of today's leading practitioners in the field, working in such diverse areas as phosphines, hydrogen complexes, transition metal complexes and nitrogen fixation, have been influenced by Chatt. The reader is then brought right up-to-date with the inclusion of some of the latest research on these topics, all of which serves to underline Chatt's continuing legacy. Intended as a permanent record of Chatt's life, work and influence, this book will be of interest to lecturers, graduate students, researchers and science historians.