

Physical Chemistry For The Life Sciences 2nd Edition

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Chemistry for the Life Sciences

- Raul Sutton 2008-11-20

Presents short topics tied to numerical or conceptual ideas, reinforced with worked examples and questions Retaining the user-friendly style of the first edition, this text is designed to eliminate the knowledge gap for those life sciences students who have not studied chemistry at an advanced level. It contains new

chapters on -

The Molecules of Life -

Kuriyan, John 2012-07-25

This textbook provides an integrated physical and biochemical foundation for undergraduate students majoring in biology or health sciences. It is particularly suitable for students planning to enter the pharmaceutical industry. This new generation of molecular biologists and

biochemists will harness the tools and insights of physics and chemistry to exploit the emergence of genomics and systems-level information in biology, and will shape the future of medicine.

Rapid Review of Chemistry for the Life Sciences and Engineering - Armen S.

Casparian 2021-12-15

To understand, maintain, and protect the physical environment, a basic understanding of chemistry, biology, and physics, and their hybrids is useful. Rapid Review of Chemistry for the Life Sciences and Engineering demystifies chemistry for the non-chemist who, nevertheless, may be a practitioner of some area of science or engineering requiring or involving chemistry. It provides quick and easy access to fundamental chemical principles, quantitative relationships, and formulas. Armed with select, contemporary applications, it is written in the hope to bridge a gap between chemists and non-chemists, so that they may communicate with and

understand each other.

Chapters 1-10 are designed to contain the standard material in an introductory college chemistry course. Chapters 11-15 present applications of chemistry that should interest and appeal to scientists and engineers engaged in a variety of fields. Additional features
More than 100 solved examples clearly illustrated and explained with SI units and conversion to other units using conversion tables included
Assists the reader to understand organic and inorganic compounds along with their structures, including isomers, enantiomers, and congeners of organic compounds
Provides a quick and easy access to basic chemical concepts and specific examples of solved problems
This concise, user-friendly review of general and organic chemistry with environmental applications will be of interest to all disciplines and backgrounds.

Annual Review of Physical Chemistry - B. S. Rabinovitch
1985

Physical Chemistry - Robert G. Mortimer 2008

In this third edition, core applications have been added along with more recent developments in the theories of chemical reaction kinetics and molecular quantum mechanics, as well as in the experimental study of extremely rapid chemical reactions. * Fully revised concise edition covering recent developments in the field * Supports student learning with step by step explanation of fundamental principles, an appropriate level of math rigor, and pedagogical tools to aid comprehension * Encourages readers to apply theory in practical situations

Physical Chemistry and Its Biological Applications -

Wallace Brey 2012-12-02

Physical Chemistry and Its Biological Applications presents the basic principles of physical chemistry and shows how the methods of physical chemistry are being applied to increase understanding of living systems. Chapters 1 and 2 of the book discuss states of matter and solutions of

nonelectrolytes. Chapters 3 to 5 examine laws in thermodynamics and solutions of electrolytes. Chapters 6 to 8 look at acid-base equilibria and the link between electromagnetic radiation and the structure of atoms.

Chapters 9 to 11 cover different types of bonding, the rates of chemical reactions, and the process of adsorption.

Chapters 12 to 14 present molecular aggregates, magnetic resonance spectroscopy and

photochemistry, and radiation.

This book is useful to biological scientists for self-study and reference. With modest additions of mathematical material by the teacher, the book should also be suitable for a full-year major's course in physical chemistry.

Molecular Driving Forces -

Ken Dill 2010-10-21

Molecular Driving Forces, Second Edition E-book is an introductory statistical thermodynamics text that describes the principles and forces that drive chemical and biological processes. It

demonstrates how the complex behaviors of molecules can result from a few simple physical processes, and how simple models provide surprisingly accurate insights into the workings of the molecular world. Widely adopted in its First Edition, *Molecular Driving Forces* is regarded by teachers and students as an accessible textbook that illuminates underlying principles and concepts. The Second Edition includes two brand new chapters: (1) "Microscopic Dynamics" introduces single molecule experiments; and (2) "Molecular Machines" considers how nanoscale machines and engines work. "The Logic of Thermodynamics" has been expanded to its own chapter and now covers heat, work, processes, pathways, and cycles. New practical applications, examples, and end-of-chapter questions are integrated throughout the revised and updated text, exploring topics in biology, environmental and energy

science, and nanotechnology. Written in a clear and reader-friendly style, the book provides an excellent introduction to the subject for novices while remaining a valuable resource for experts. [Chemistry for Pharmacy and the Life Sciences](#) - Gareth Thomas 1996
Using a straightforward and broad approach this book incorporates inorganic and organic chemistry at degree level. It covers fundamental vocabulary and philosophy of chemistry, basic organic chemistry and selected inorganic topics of interest to the natura
[Quantities, Units and Symbols in Physical Chemistry](#) - E Richard Cohen 2007-10-31
The first IUPAC Manual of Symbols and Terminology for Physicochemical Quantities and Units (the Green Book) of which this is the direct successor, was published in 1969, with the object of 'securing clarity and precision, and wider agreement in the use of symbols, by chemists in different countries, among

physicists, chemists and engineers, and by editors of scientific journals'. Subsequent revisions have taken account of many developments in the field, culminating in the major extension and revision represented by the 1988 edition under the simplified title Quantities, Units and Symbols in Physical Chemistry. This 2007, Third Edition, is a further revision of the material which reflects the experience of the contributors with the previous editions. The book has been systematically brought up to date and new sections have been added. It strives to improve the exchange of scientific information among the readers in different disciplines and across different nations. In a rapidly expanding volume of scientific literature where each discipline has a tendency to retreat into its own jargon this book attempts to provide a readable compilation of widely used terms and symbols from many sources together with brief understandable definitions. This is the definitive guide for

scientists and organizations working across a multitude of disciplines requiring internationally approved nomenclature.

Introduction to Non-equilibrium Physical Chemistry - R. P. Rastogi
2007-10-16

Introduction to Non-equilibrium Physical Chemistry presents a critical and comprehensive account of Non-equilibrium Physical Chemistry from theoretical and experimental angle. It covers a wide spectrum of non-equilibrium phenomena from steady state close to equilibrium to non-linear region involving transition to bistability, temporal oscillations, spatio-temporal oscillations and finally to far from equilibrium phenomena such as complex pattern formation, dynamic instability at interfaces, Chaos and complex growth phenomena (fractals) in Physico-chemical systems. Part I of the book deals with theory and experimental studies concerning transport

phenomena in membranes (Thermodynamics, Electroosmotic) and in continuous systems (Thermal diffusion, Soret effect) close to equilibrium Experimental tests provide insight into the domain of validity of Non-equilibrium Thermodynamics ,which is the major theoretical tool for this region. Later developments in Extended Irreversible Thermodynamics and Non-equilibrium Molecular dynamics have been discussed in the Appendix. Part II deals with non-linear steady states and bifurcation to multistability, temporal and spatio- temporal oscillations (Chemical waves). Similarly Part II deals with more complex phenomena such as Chaos and fractal growth occurring in very far from equilibrium region. Newer mathematical techniques for investigating such phenomena along with available experimental studies. Part IV deals with analogous non-equilibrium phenomena occurring in the real systems (Socio-political, Finance and

Living systems etc.) for which physico-chemical systems discussed in earlier chapters provide a useful model for development of theories based on non-linear science and science of complexity. The book provides a critical account of theoretical studies on non-equilibrium phenomenon from region close to equilibrium to far equilibrium Experimental studies have been reported which provide test of the theories and their limitations Impacts of the concepts developed in non-equilibrium Physical Chemistry in sociology, economics and other social science and living systems has been discussed Physical Chemistry for the Life Sciences - Gordon M. Barrow 1974

A Textbook of Physical Chemistry - Arthur Adamson 2012-12-02

A Textbook of Physical Chemistry, Second Edition serves as an introductory text to physical chemistry. Topics covered range from wave

mechanics and chemical bonding to molecular spectroscopy and photochemistry; ideal and nonideal gases; the three laws of thermodynamics; thermochemistry; and solutions of nonelectrolytes. The kinetics of gas-phase reactions; colloids and macromolecules; and nuclear chemistry and radiochemistry are also discussed. This edition is comprised of 22 chapters; the first of which introduces the reader to the behavior of ideal and nonideal gases, with particular emphasis on the van der Waals equation. The discussion then turns to the kinetic molecular theory of gases and the application of the Boltzmann principle to the treatment of molar polarization; dipole and magnetic moments; the phenomenology of light absorption; and classical and statistical thermodynamics. The chapters that follow focus on the traditional sequence of chemical and phase equilibria, electrochemistry, and chemical kinetics in gas phase and

solution phase. This book also considers wave mechanics and its applications; molecular spectroscopy and photochemistry; and the excited state, and then concludes with an analysis of crystal structure, colloid and polymer chemistry, and radio and nuclear chemistry. This reference material is intended primarily as an introductory text for students of physical chemistry.

Collection of Problems in Physical Chemistry - Jiří Bareš
2013-10-22

Collection of Problems in Physical Chemistry provides illustrations and problems covering the field of physical chemistry. The material has been arranged into illustrations that are solved and supplemented by problems, thus enabling readers to determine the extent to which they have mastered each subject. Most of the illustrations and problems were taken from original papers, to which reference is made. The English edition of this book has been translated from the

manuscript of the 2nd Czech edition. It has been changed slightly in some places and enlarged on in others on the basis of further experience gained in teaching physical chemistry at the Institute of Chemical Technology in Prague. The book begins with illustrations and problems on the atomic structure and the fundamentals of quantum mechanics. Subsequent chapters cover the kinetic theory of ideal gas; fundamentals of thermodynamics; states of matter; phase equilibrium; chemical equilibrium and third law of thermodynamics; electrochemistry; reaction kinetics; surface phenomena and colloidal systems; and molecular structure and physical properties.

Basic Organic Chemistry for the Life Sciences - Hrvoj Vančik 2014-06-26

This book is designed for students of biology, molecular biology, ecology, medicine, agriculture, forestry and other professions where the knowledge of organic

chemistry plays the important role. The work may also be of interest to non-professionals, as well as to teachers in high schools. The book consists of 11 chapters that cover: - basic principles of structure and constitution of organic compounds, - the elements of the nomenclature, - the concepts of the nature of chemical bond, - introductions in NMR and IR spectroscopy, - the concepts and main classes of the organic reaction mechanisms, - reactions and properties of common classes or organic compounds, - and the introduction to the chemistry of the natural organic products followed by basic principles of the reactions in living cells.

Biophysical Chemistry - James P. Allen 2009-01-26

"Biophysical Chemistry is an outstanding book that delivers both fundamental and complex biophysical principles, along with an excellent overview of the current biophysical research areas, in a manner that makes it accessible for mathematically and non-

mathematically inclined readers." (Journal of Chemical Biology, February 2009) This text presents physical chemistry through the use of biological and biochemical topics, examples and applications to biochemistry. It lays out the necessary calculus in a step by step fashion for students who are less mathematically inclined, leading them through fundamental concepts, such as a quantum mechanical description of the hydrogen atom rather than simply stating outcomes. Techniques are presented with an emphasis on learning by analyzing real data. Presents physical chemistry through the use of biological and biochemical topics, examples and applications to biochemistry Lays out the necessary calculus in a step by step fashion for students who are less mathematically inclined Presents techniques with an emphasis on learning by analyzing real data Features qualitative and quantitative problems at the end of each chapter All art available for

download online and on CD-ROM

An Introduction to Medicinal Chemistry - Graham L. Patrick
2013-01-10

This volume provides an introduction to medicinal chemistry. It covers basic principles and background, and describes the general tactics and strategies involved in developing an effective drug. BIO2010 - National Research Council 2003-02-13

Biological sciences have been revolutionized, not only in the way research is conductedâ€"with the introduction of techniques such as recombinant DNA and digital technologyâ€"but also in how research findings are communicated among professionals and to the public. Yet, the undergraduate programs that train biology researchers remain much the same as they were before these fundamental changes came on the scene. This new volume provides a blueprint for bringing undergraduate biology education up to the speed of today's research fast

track. It includes recommendations for teaching the next generation of life science investigators, through: Building a strong interdisciplinary curriculum that includes physical science, information technology, and mathematics. Eliminating the administrative and financial barriers to cross-departmental collaboration. Evaluating the impact of medical college admissions testing on undergraduate biology education. Creating early opportunities for independent research. Designing meaningful laboratory experiences into the curriculum. The committee presents a dozen brief case studies of exemplary programs at leading institutions and lists many resources for biology educators. This volume will be important to biology faculty, administrators, practitioners, professional societies, research and education funders, and the biotechnology industry.

A Life Scientist's Guide to Physical Chemistry - Marc R. Roussel 2012-04-05

Motivating students to engage with physical chemistry through biological examples, this textbook demonstrates how the tools of physical chemistry can be used to illuminate biological questions. It clearly explains key principles and their relevance to life science students, using only the most straightforward and relevant mathematical tools. More than 350 exercises are spread throughout the chapters, covering a wide range of biological applications and explaining issues that students often find challenging. These, along with problems at the end of each chapter and end-of-term review questions, encourage active and continuous study. Over 130 worked examples, many deriving directly from life sciences, help students connect principles and theories to their own laboratory studies. Connections between experimental measurements and key theoretical quantities are frequently highlighted and reinforced. Answers to the exercises are included in the

book. Fully worked solutions and answers to the review problems, password-protected for instructors, are available at www.cambridge.org/roussel.

Principles of Physical Chemistry - Robert M. Rosenberg 1977

Physical Chemistry for the Chemical and Biological Sciences - Raymond Chang
2000-05-12

Hailed by advance reviewers as "a kinder, gentler P. Chem.

text," this book meets the needs of an introductory course on physical chemistry, and is an ideal choice for courses geared toward pre-medical and life sciences students. Physical Chemistry for the Chemical and Biological Sciences offers a wealth of applications to biological problems, numerous worked examples and around 1000 chapter-end problems.

Physical Chemistry of Macromolecules - S. F. Sun
2004-03-15

Integrating coverage of polymers and biological macromolecules into a single

text, Physical Chemistry of Macromolecules is carefully structured to provide a clear and consistent resource for beginners and professionals alike. The basic knowledge of both biophysical and physical polymer chemistry is covered, along with important terms, basic structural properties and relationships. This book includes end of chapter problems and references, and also: Enables users to improve basic knowledge of biophysical chemistry and physical polymer chemistry. Explores fully the principles of macromolecular chemistry, methods for determining molecular weight and configuration of molecules, the structure of macromolecules, and their separations.

Atkins' Physical Chemistry 11e

- Peter Atkins 2019-08-20

Atkins' Physical Chemistry: Molecular Thermodynamics and Kinetics is designed for use on the second semester of a quantum-first physical chemistry course. Based on the hugely popular Atkins' Physical Chemistry, this volume

approaches molecular thermodynamics with the assumption that students will have studied quantum mechanics in their first semester. The exceptional quality of previous editions has been built upon to make this new edition of Atkins' Physical Chemistry even more closely suited to the needs of both lecturers and students. Re-organised into discrete 'topics', the text is more flexible to teach from and more readable for students. Now in its eleventh edition, the text has been enhanced with additional learning features and maths support to demonstrate the absolute centrality of mathematics to physical chemistry. Increasing the digestibility of the text in this new approach, the reader is brought to a question, then the math is used to show how it can be answered and progress made. The expanded and redistributed maths support also includes new 'Chemist's toolkits' which provide students with succinct reminders of mathematical

concepts and techniques right where they need them.

Checklists of key concepts at the end of each topic add to the extensive learning support provided throughout the book, to reinforce the main take-home messages in each section. The coupling of the broad coverage of the subject with a structure and use of pedagogy that is even more innovative will ensure Atkins' Physical Chemistry remains the textbook of choice for studying physical chemistry.

Physical Chemistry for the Biological Sciences - Gordon G. Hammes 2015-04-10

This book provides an introduction to physical chemistry that is directed toward applications to the biological sciences. Advanced mathematics is not required. This book can be used for either a one semester or two semester course, and as a reference volume by students and faculty in the biological sciences.

Physical Chemistry for the Life Sciences - Thomas Engel 2008

KEY BENEFIT: Physical Chemistry for the Life Sciences presents the core concepts of physical chemistry with mathematical rigor and conceptual clarity, and develops the modern biological applications alongside the physical principles. The traditional presentations of physical chemistry are augmented with material that makes these chemical ideas biologically relevant, applying physical principles to the understanding of the complex problems of 21st century biology. **KEY TOPICS:** Physical Chemistry, Biology. **MARKET:** For all readers interested in physical chemistry and biology. Organic Chemistry - Robert J. Ouellette 2014-06-06 Organic Chemistry provides a comprehensive discussion of the basic principles of organic chemistry in their relation to a host of other fields in both physical and biological sciences. This book is written based on the premise that there are no shortcuts in organic chemistry, and that understanding and mastery

cannot be achieved without devoting adequate time and attention to the theories and concepts of the discipline. It lays emphasis on connecting the basic principles of organic chemistry to real world challenges that require analysis, not just recall. This text covers topics ranging from structure and bonding in organic compounds to functional groups and their properties; identification of functional groups by infrared spectroscopy; organic reaction mechanisms; structures and reactions of alkanes and cycloalkanes; nucleophilic substitution and elimination reactions; conjugated alkenes and allylic systems; electrophilic aromatic substitution; carboxylic acids; and synthetic polymers. Throughout the book, principles logically evolve from one to the next, from the simplest to the most complex examples, with abundant connections between the text and real world applications. There are extensive examples of biological relevance, along

with a chapter on organometallic chemistry not found in other standard references. This book will be of interest to chemists, life scientists, food scientists, pharmacists, and students in the physical and life sciences. Contains extensive examples of biological relevance Includes an important chapter on organometallic chemistry not found in other standard references Extended, illustrated glossary Appendices on thermodynamics, kinetics, and transition state theory Physical Chemistry for the Biosciences - Raymond Chang 2005-02-11

Physical Chemistry for the Biosciences has been optimized for a one-semester introductory course in physical chemistry for students of biosciences.

Mathematics for Physical Chemistry - Robert G.

Mortimer 2005-06-10

Mathematics for Physical Chemistry, Third Edition, is the ideal text for students and physical chemists who want to sharpen their mathematics skills. It can help prepare the

reader for an undergraduate course, serve as a supplementary text for use during a course, or serve as a reference for graduate students and practicing chemists. The text concentrates on applications instead of theory, and, although the emphasis is on physical chemistry, it can also be useful in general chemistry courses. The Third Edition includes new exercises in each chapter that provide practice in a technique immediately after discussion or example and encourage self-study. The first ten chapters are constructed around a sequence of mathematical topics, with a gradual progression into more advanced material. The final chapter discusses mathematical topics needed in the analysis of experimental data. Numerous examples and problems interspersed throughout the presentations Each extensive chapter contains a preview, objectives, and summary Includes topics not found in similar books, such as a review of general

algebra and an introduction to group theory Provides chemistry specific instruction without the distraction of abstract concepts or theoretical issues in pure mathematics

Physical Chemistry for the Biological Sciences - Gordon G. Hammes 2015-04-20

This book provides an introduction to physical chemistry that is directed toward applications to the biological sciences. Advanced mathematics is not required. This book can be used for either a one semester or two semester course, and as a reference volume by students and faculty in the biological sciences.

Physical Chemistry for the Life Sciences - Peter Atkins 2011-01-30

Peter Atkins and Julio de Paula offer a fully integrated approach to the study of physical chemistry and biology.

Experiments in Physical Chemistry - J. M. Wilson 2016-06-06

Experiments in Physical Chemistry aims to facilitate

experimental work in the physical chemistry laboratory at every stage of a student's career. The book is organized into three parts. Part I consists of those experiments that have a simple theoretical background. Part II consists of experiments that are associated with more advanced theory or more recently developed techniques, or that require a greater degree of experimental skill. The last part contains experiments that are in the nature of investigations. This book will be useful to students to gain confidence in his ability to perform a physical chemistry experiment and to appreciate the value of the experimental approach.

Solutions Manual to Accompany Physical Chemistry for the Life Sciences, 2nd Edition - C. A. Trapp 2011

Solutions Manual to Accompany Physical Chemistry for the Life Sciences - C. A. Trapp 2011

This solutions manual contains fully-worked solutions to all

end-of-chapter discussion questions and exercises featured in 'Physical Chemistry for the Life Sciences.

Physical Chemistry - Kenneth S Schmitz 2018-06-14

The advancements in society are intertwined with the advancements in science. To understand how changes in society occurred, and will continue to change, one has to have a basic understanding of the laws of physics and chemistry. *Physical Chemistry: Multidisciplinary Applications in Society* examines how the laws of physics and chemistry (physical chemistry) explain the dynamic nature of the Universe and events on Earth, and how these events affect the evolution of society (multidisciplinary applications).

The ordering of the chapters reflects the natural flow of events in an evolving Universe: *Philosophy of Science*, the basis of the view that natural events have natural causes - *Cosmology*, the origin of everything from the Big Bang to the current state of the Universe - *Geoscience*, the

physics and chemistry behind the evolution of the planet Earth from its birth to the present - *Life Science*, the molecules and mechanisms of life on Earth - *Ecology*, the interdependence of all components within the *Ecosphere and the Universe* - *Information Content*, emphasis on how words and phrases and framing of issues affect opinions, reliability of sources, and the limitations of knowledge. Addresses the four Ws of science: Why scientists believe Nature works the way it does, Who helped develop the fields of science, What theories of natural processes tell us about the nature of Nature, and Where our scientific knowledge is taking us into the future Gives a historical review of the evolution of science, and the accompanying changes in the philosophy of how science views the nature of the Universe Explores the physics and chemistry of Nature with minimal reliance on mathematics Examines the structure and dynamics of the

Universe and our Home Planet Earth Provides a detailed analysis of how humans, as members of the Ecosphere, have influenced, and are continuing to influence, the dynamics of events on the paludarium called Earth Presents underlying science of current political issues that shape the future of humankind Emphasizes how words and phrases and framing of issues can influence the opinions of members of society Makes extensive use of metaphors and everyday experiences to illustrate principles in science and social interactions

Physical Chemistry for the Life Sciences - Peter Atkins

2023-02-03

From thermodynamics to molecular interactions, *Physical Chemistry for the Life Sciences*, Third Edition, explains how the principles of physical chemistry apply to the processes of life. Offering worked examples and multiple case studies throughout, students are supported to master even the most complex concepts and how they apply in

biological contexts, while acquiring key problem-solving and mathematical skills. Directly addressing the main challenges faced by students, this book's pedagogically rich approach provides an accessible and holistic guide to the subject. The extended scope of this new edition includes the essential techniques that can be used to characterize biological systems, including biochemical spectroscopy, x-ray diffraction, and spectrometry.

Physical Chemistry: Principles and Applications in Biological Sciences - Tinoco

Thermodynamics and Kinetics for the Biological Sciences - Gordon G. Hammes 2000-06-26 Gain a working knowledge of thermodynamics and kinetics with a minimum of mathematics—a guide for individuals in the biological sciences An understanding of thermodynamics and kinetics is essential for researchers investigating molecular phenomena in diverse

disciplines, including bioorganic chemistry, medicinal chemistry, biochemistry, pharmaceuticals, and biology. The use of these physical chemistry tools in the biological sciences has exploded over the past fifteen years, but the majority of works on thermodynamics and kinetics require mathematical expertise beyond that of many researchers in the field. Presenting a highly accessible introduction to thermodynamics and kinetics, *Thermodynamics and Kinetics for the Biological Sciences* employs a minimum of mathematics, assuming only a basic calculus background, while treating a wide range of topics in a logical and easy-to-follow style. All principles and concepts are clearly illustrated through the use of relevant applications and examples from the biological sciences, and explanations are further enhanced with problems and up-to-date references. Written by a world-renowned authority on biochemical kinetics, this remarkable book also features

an easy-to-understand statistical development of entropy and a more extensive coverage of chemical kinetics and ligand binding to macromolecules than is usually found in books of this kind. Readers will acquire a working knowledge of thermodynamics and kinetics that they can readily apply to biological systems and use for exploring the scientific literature. *Physical Chemistry for the Life Sciences* - James R. Barrante 1977

Applied Mathematics for Physical Chemistry - James R. Barrante 2016-02-10
By the time chemistry students are ready to study physical chemistry, they've completed mathematics courses through calculus. But a strong background in mathematics doesn't necessarily equate to knowledge of how to apply that mathematics to solving physicochemical problems. In addition, in-depth understanding of modern concepts in physical chemistry requires knowledge of

mathematical concepts and techniques beyond introductory calculus, such as differential equations, Fourier series, and Fourier transforms. This results in many physical chemistry instructors spending valuable lecture time teaching mathematics rather than chemistry. Barrante presents both basic and advanced mathematical techniques in the context of how they apply to physical chemistry. Many problems at the end of each chapter test students' mathematical knowledge. Designed and priced to accompany traditional core textbooks in physical chemistry, Applied Mathematics for Physical Chemistry provides students with the tools essential for answering questions in thermodynamics, atomic/molecular structure, spectroscopy, and statistical mechanics.

Physical Chemistry - David S. Eisenberg 1979

The Physical Basis of Chemistry - Warren S. Warren

2015-07-14

If the descriptive text you're using for teaching general chemistry seems to lack sufficient mathematics and physics to make the results of its presentation of classical mechanics, molecular structure, and statistics understandable, you're not alone. Written to provide supplemental and mathematically challenging topics for the advanced lower-division undergraduate chemistry course, or the non-major, junior-level physical chemistry course, *The Physical Basis of Chemistry* will offer your students an opportunity to explore quantum mechanics, the Boltzmann distribution, and spectroscopy in a refreshingly compelling way. Posed and answered are questions concerning everyday phenomena: How can two discharging shotguns and two stereo speakers be used to contrast particles and waves? Why does a collision between one atom of gas and the wall of its container transfer momentum but not much

energy? How does a microwave oven work? Why does carbon dioxide production heat the earth? Why are leaves green, water blue, and how do the eyes detect the difference? Unlike other texts on this subject, however, *The Physical Basis of Chemistry* deals directly with the substance of these questions, avoiding the use of predigested material more appropriate for memorization exercises than for actual concrete learning. The only prerequisite is first-

semester calculus, or familiarity with derivatives of one variable. Provides a concise, logical introduction to physical chemistry. Features carefully worked-out sample problems at the end of each chapter. Includes more detailed and clearly explained coverage of quantum mechanics and statistics than found in other texts. Available in an affordable paperback edition. Designed specifically as a supplementary text for advanced/honors chemistry courses. Uses SI units throughout.