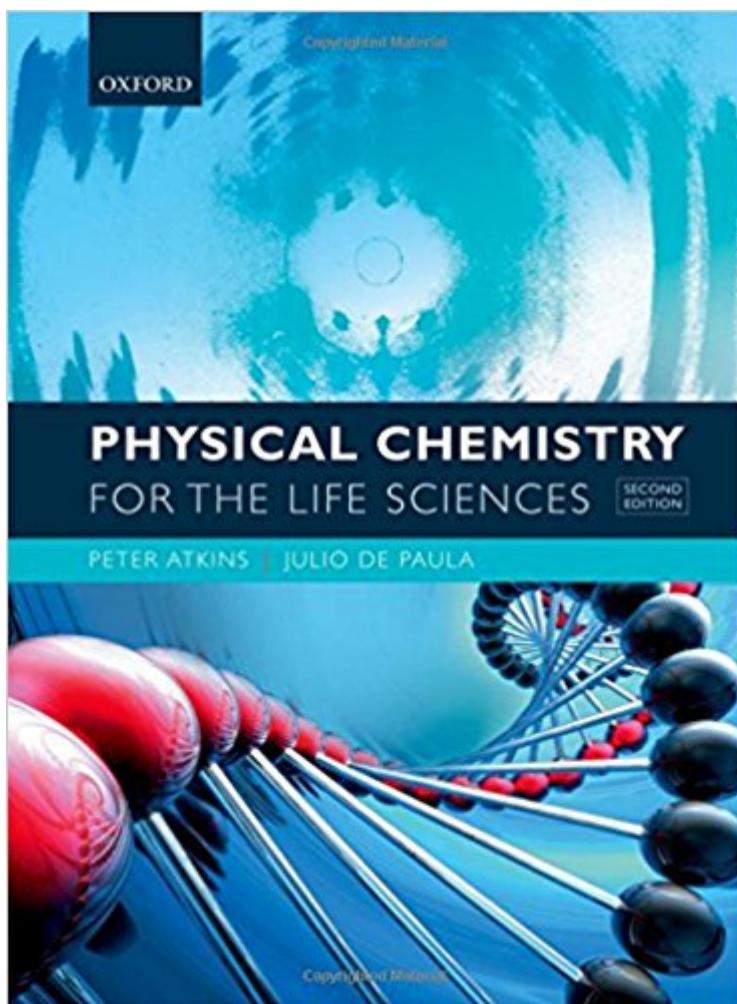


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# Physical Chemistry For The Life Sciences



## Synopsis

Physical chemistry lies at the heart of the behaviour of those macromolecules and molecular assemblies that have vital roles in all living organisms. Physical principles determine the stability of proteins and nucleic acids, the rate at which biochemical reactions proceed, the transport of molecules across biological molecules; they allow us to describe structure and reactivity in complex biological systems, and make sense of how these systems operate. *Physical Chemistry for the Life Sciences* provides a balanced presentation of the concepts of physical chemistry, and their extensive applications to biology and biochemistry. It is written to straddle the worlds of physical chemistry and the life sciences and to show students how the tools of physical chemistry can elucidate and illuminate biological questions. Opening with a suite of chapters on Biochemical Thermodynamics, with a focus on energy conversion in biological cells and the factors that stabilize proteins, nucleic acids, and cell membranes, the book goes on to explore the Kinetics of Life Processes, examining the rates of chemical reactions, how rates can help characterise the mechanism of a reaction, and how enzymes affect reaction rates. A third section, Biomolecular Structure, looks at how concepts of physical chemistry can be used to establish those 'rules' that govern the assembly of complex biological structures, while the final section, Biomolecular Spectroscopy, describes the major techniques in biochemistry that are being applied to help us to explore biochemical processes and systems ever further. *Physical Chemistry for the Life Sciences* places emphasis on clear explanations of difficult concepts, with an eye toward building insight into biochemical phenomena. An extensive range of learning features, including worked examples, illustrations, self-tests, and case studies, support student learning throughout, while special attention is given to providing extensive help to students with those mathematical concepts and techniques that are so central to a sound understanding of physical chemistry. Balancing clarity and rigor of exposition of basic concepts with extensive discussion of biological techniques and processes, *Physical Chemistry for the Life Sciences* is the perfect resource for every life science student who seeks to master those essentials of physical chemistry that underpin life itself.

**Online Resource Centre** For students:- Web links for each chapter, pointing students to interesting sources of related information and data, to facilitate self-directed learning- A list of key equations for each chapter, to help students revise and master the key mathematical concepts that underpin the subject- Living graphs, which present graphs from the text in interactive format, and enable students to strengthen their learning by manipulating key variables and exploring the consequences- Three-dimensional, interactive models of the biomolecules appearing in the end-of-book atlas of structures

For registered adopters of the book: Figures in electronic format

## Book Information

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## Customer Reviews

Review from previous edition: "An excellent textbook - fun to read and crystal clear." --Dr Hans A. Heus, Radboud University Nijmegen "The toolkits are great, the worked examples will be very useful and the 'in the laboratory' sections are very nice to read, and will provide great teaching material. As [in the first edition] the use of recently developed techniques is superb." --Dr Perdita Barran, University of Edinburgh "The authors succeed brilliantly in their aim to show that deep insights into the behaviour of biological systems can be gained by applying the principles of physical chemistry. I enjoyed reading this book and would recommend it without reservation to teachers and students alike." --Chemistry World, January 2006 "This book provides an excellent insight into the subject of physical chemistry, understandable and suitable for both beginners and experts of chemistry." --Internal Journal of Biological Macromolecules, August 2006

Peter Atkins, Fellow of Lincoln College, University of Oxford, Julio de Paula, Professor of Chemistry, Lewis & Clark College Peter Atkins is a fellow of Lincoln College in the University of Oxford and the author of more than sixty books for students and a general audience. His texts are market leaders around the globe. A frequent lecturer in the United States and throughout the world, he has held visiting professorships in France, Israel, Japan, China, and New Zealand. He was the founding chairman of the Committee on Chemistry Education of the International Union of Pure and Applied Chemistry and was a member of IUPAC's Physical and Biophysical Chemistry Division. Julio de

Paula is Professor of Chemistry and Dean of the College of Arts & Sciences at Lewis & Clark College. A native of Brazil, Professor de Paula received a B.A. degree in chemistry from Rutgers, The State University of New Jersey, and a Ph.D. in biophysical chemistry from Yale University. His research activities encompass the areas of molecular spectroscopy, biophysical chemistry, and nanoscience. He has taught courses in general chemistry, physical chemistry, biophysical chemistry, instrumental analysis, and writing.

Decent book. Has a few typos in it, more than are usually in a textbook actually, but for the most part it does a decent job of explaining things. Unfortunately the end-of-chapter questions sometimes are on topics that are not covered in the book, and you would have no way of answering them without the solutions manual (or a strong background in physical chemistry). The book can do a better job of explaining certain topics that are more important to understand, but it's not bad.

The solution manual actually taught more on how to do the problems than the actual book did. However, the book did do a nice job for those questions that you may have, but do not necessarily need for an exam. Conceptually, it's all there. Example problems were lacking and few in each chapter, but with the solutions manual, each problem does a good job of explaining major concepts and minor points.

A good book for people in the biological sciences, and a good introduction to physical chemistry in general. Book came earlier than expected.

Love it, even though older edition. It explains so well. I'm actually reading it right now and I am NOT a text book reader but it's good and my lecture teacher doesn't explain clear like this book! 10/10!

For a book that's about physical chemistry, it is also surprisingly easy to read and understand. I would recommend it.

exactly as expected

Good book. Pretty clear and concise.

I payed extra to get a new. It was clean and unmarked, but clearly it was used before.

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