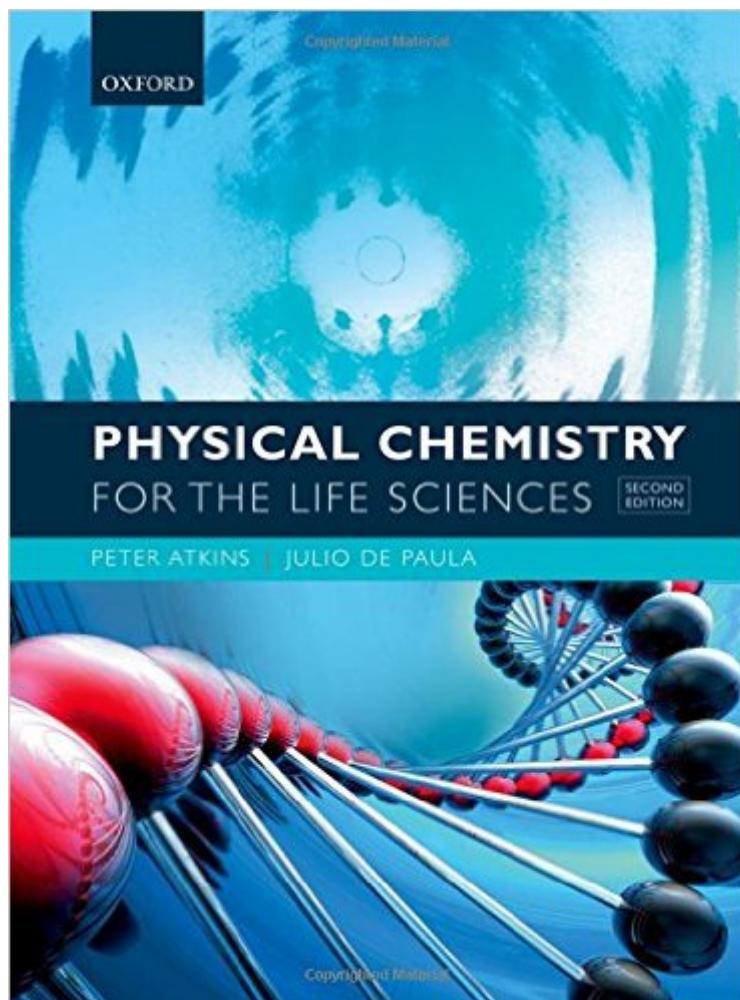


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# Physical Chemistry For The Life Sciences



## 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

pros: It has very relevant biological examples and applications. cons: The explanations of concepts are a bit confusing. Many of the derivations and examples skip steps and offer no clear definition of important variables used in the equations. The problem sets are confusing as well and expect students to assume that numbers in the tables throughout the chapter and the back of the book are given values even though those tables frequently contain the answers already in them. I frequently ran into dead ends on problems when the book assumed I knew the density or heat capacity of some substance when it was a little side note in an example I worked in the chapter and not in any table or appendix. I thought the material included was good and relevant, but I had a very hard time following the authors points and logic. I wouldn't suggest using this book unless an instructor is around to help clarify the confusion and mistakes this book frequently contains.

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.

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.

Without question this is the worst textbook I have ever read. The author complicates simple topics. The author presents new equations and expects the reader to immediately understand from where they derive. The author makes huge leaps in subject matter without making connections for the reader. The author most frequently uses the phrase "It follows that...", which is ironic because typically the reader doesn't follow.

I rented this textbook, but some of the pages are stuck together and it is really dirty. It has what looks like food spilt on it and I've found other peoples hair in it. I would have returned it but I need it every day for my class.

This is a great book to learn from, either on your own (as I did), or as a text book for a class.

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