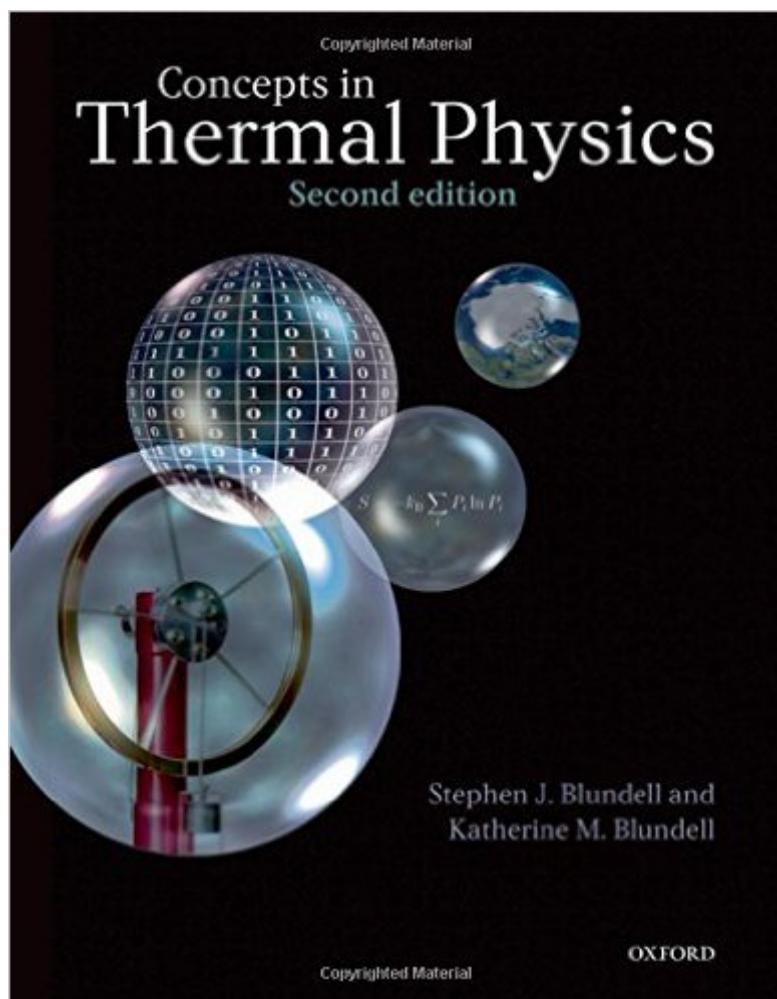


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# Concepts In Thermal Physics



## **Synopsis**

An understanding of thermal physics is crucial to much of modern physics, chemistry and engineering. This book provides a modern introduction to the main principles that are foundational to thermal physics, thermodynamics and statistical mechanics. The key concepts are carefully presented in a clear way, and new ideas are illustrated with copious worked examples as well as a description of the historical background to their discovery. Applications are presented to subjects as diverse as stellar astrophysics, information and communication theory, condensed matter physics and climate change. Each chapter concludes with detailed exercises. The second edition of this popular textbook maintains the structure and lively style of the first edition but extends its coverage of thermodynamics and statistical mechanics to include several new topics, including osmosis, diffusion problems, Bayes theorem, radiative transfer, the Ising model and Monte Carlo methods. New examples and exercises have been added throughout. To request a copy of the Solutions Manual, visit: <http://global.oup.com/uk/academic/physics/admin/solutions>

## **Book Information**

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## **Customer Reviews**

I used this book in conjunction with Kittel for an upper division undergraduate course, and was extremely happy that I did. I constantly turned to this text when Kittel became too dense and confusing. This text really helped clarify many of the essential concepts of this course. In addition, I consistently used this as a reference. This book consolidates important information and equations very clearly and concisely; something that Kittel does very poorly. However, Kittel was still essential

in getting at the root of the physics behind the concepts. Kittel is a much deeper book when asking "Why?". Blundell and Blundell is a wonderful text, but is not the best stand-alone text. I highly recommend it as a supplemental text.

Where do I begin? We had switched to using this textbook for our second course in statistical mechanics at the undergraduate level; I wish we hadn't. The chapters are short which makes reading them easy. However, because of the short chapters, I don't feel that it goes as in depth as I would like it to. Perhaps it could explain things a lot better if it didn't use the word "hence" in every sentence. The authors should have written this book with a thesaurus. One of the biggest flaws is that the book is filled with many mistakes. There is an errata for this book, but only covers a tiny fraction of the mistakes. Many of the end of chapter problems are stated unclear, and have many errors. For example, it asks you to derive something, and the equation it wants you to derive is wrong. In the appendix, it gives mathematical derivations to some special functions, like the volume of a hypersphere, and the derivation is wrong! Also, the end of chapter problems are nothing more than mathematical manipulations and derivations. None of the questions help develop a concept for the material. I recommend not getting this book.

The advantage of the text is that it's an easy read. The chapters are short, the mathematics is elementary (multi-variable calculus is the supremum of what one should know) and the concepts are readily available to one willing to stop and think (as opposed to one who wishes to be fed directly). However, there are points where the author discusses topics repeatedly at an almost childish level. Moreover, there exists many errors within the text. Though most are minor and sort of obvious, they are rather annoying. The end of chapter problems are mostly mathematical manipulations. There are of course problems that test one's conceptual understanding of the material; however, the subject is mathematical in nature and the concepts are relatively babyish. Reading through chapters 1-30, my opinion of the text is that it's a great buy if one wishes to see the subject through a mathematical lens (which is hopefully the case).

This is a fun book to read. No. Really. It is! It is rare for a physics book to talk about spherical chicken or nut roasts, for example. The principles and examples are clearly delineated. There are margin notes from the authors. Suggestions for what math you need for certain sections. Biographies of major players in thermal physics. And suggestions for further reading for some chapters.

I love this book. Its funny, clear, exciting, and a good read. The concepts actually make sense. And it is all cut up into sizable little chapters, with important concepts summarized at the end of each chapter. This is the best textbook I've ever had.

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