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# Thermal Physics (2nd Edition)



## Synopsis

CONGRATULATIONS TO HERBERT KROEMER, 2000 NOBEL LAUREATE FOR PHYSICSÂ For upper-division courses in thermodynamics or statistical mechanics, Kittel and Kroemer offers a modern approach to thermal physics that is based on the idea that all physical systems can be described in terms of their discrete quantum states, rather than drawing on 19th-century classical mechanics concepts.

## Book Information

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## Customer Reviews

I used KittelÂ¢Â™s Thermal Physics for my undergraduate statistical mechanics course. I remembered that I had difficulties grasping the main ideas at that time. I can certainly understand the so-so reviews as this book has its good and bad. Statistical physics is one of the harder courses in undergraduate Physics because most Physics courses focus on 1 or 2-particle physics, the concept of many particles is new, the techniques are really different, and some phenomena are not intuitive. On top of that, statistical physics is based on counting states. Since the variables in classical physics are all continuous, statistical physics is typically built on quantum physics, which is not easy to start with. There is no doubt that no book can do a perfect job in explaining statistical/thermal physics for undergraduates. Overall, this book is not a big book, it contains roughly over a semester of materials. I think the first 9 chapters are the core chapters, then the instructor can pick a couple more chapters as applications to wrap up the course. I can see that the style of this book is different from others. One way to present statistical physics is to present the fundamental assumptions, teach students how to count, and to teach us the techniques to analyze

systems with constant temperature, constant pressure and so on. Basically, all the abstract formalities and technical details are presented cleanly and coherently at the very beginning, and then applications at the end. Kittel's book is different. The theories are presented bit by bit, and interlaced with applications such that the concepts and definitions are introduced with a practical context. This way, the book is less abstract, and more fun to read and teach throughout the whole semester. The downside is that the theories are distributed everywhere. It might not be easy to link everything together to see the whole coherent picture of statistical physics, at least not for the first reading of the book. For the intention of the book, I think it is pretty well-written. There are pretty good exercises at the end of each chapter. It does not present statistical physics in the cleanest manner, and this is where the confusion and frustration come from. The merit of this book is that it is not as abstract as other books. This makes it a pretty choice for undergraduates who do not like theories after theories for half of the semester. As a side note, this book is better than Kittel's Solid State Physics book.

Schroeder's Introduction to Thermal Physics is far more readable, and has a good flow to it. Kittel and Kroemer is terribly disjointed, never treating any idea thoroughly before it jumps to the next idea, then doubling back three chapters later to continue with the previous idea. It's next to impossible to develop any kind of large-scale, qualitative view of the material. Giant ideas are presented practically as footnotes. Entropy gets dropped into your lap in chapter 2 with hardly any discussion, just a formula that explains nothing, followed by an insane number of partial derivatives and Greek letters that aren't connected to any fundamental physical ideas in the text. You can play with math for ten chapters without understanding the actual physics.

I hate this book. It's really unclear. Reading through it made me want to fall asleep. Don't get it unless it's absolutely required for your course.

the book is in very good quality. thank you

This is the first/international edition.

Unsatisfying. I bought it for \$90, but it's an international version. Does this make any sense?

Great book,,, first one to introduce me to thermal physics/statistical mechanics. Although to get a

good grasp of the subject i suggest reading other thermal phys books aswell, especially dunhill, and the other is reis

Very unclear mathematics. The book also doesn't really put it into the perspective of the physics, which is even more confusing.

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