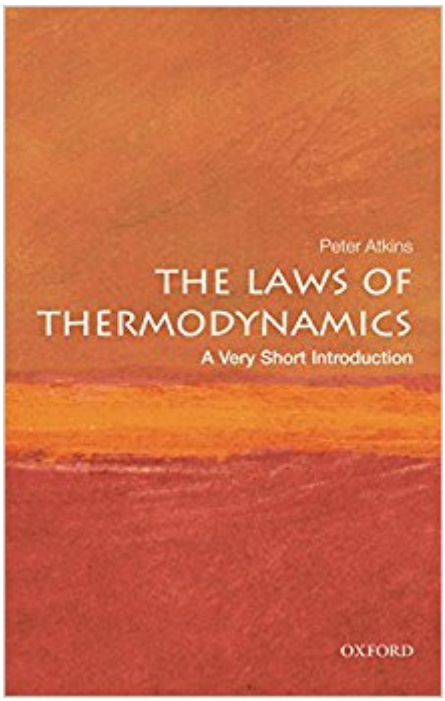
Four Laws That Drive The Universe



Synopsis

The laws of thermodynamics drive everything that happens in the universe. From the sudden expansion of a cloud of gas to the cooling of hot metal, and from the unfurling of a leaf to the course of life itself - everything is directed and constrained by four simple laws. They establish fundamental concepts such as temperature and heat, and reveal the arrow of time and even the nature of energy itself.Peter Atkins' powerful and compelling introduction explains what the laws are and how they work, using accessible language and virtually no mathematics. Guiding the reader from the Zeroth Law to the Third Law, he introduces the fascinating concept of entropy, and how it not only explains why your desk tends to get messier, but also how its unstoppable rise constitutes the engine of the universe.

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Customer Reviews

They say it is impossible to break the thermodynamics laws in this universe, everything else is uncertain; give it a try. You can see and feel thermodynamics making a cup of tea while reading this book. Hell of fun, right? Wait for it because this Atkins guy push the whole thing to another level of

fun. Damn good teacher! For example, he started comparing work and heat at the molecular level to end the discussion making a connection with our civilization development. You will never forget the laws, never!

As an individual that tends more to the side of the "soft" sciences, the important theorems that are foundational to the "hard" sciences can be extremely difficult to grasp or intimidating to even attempt to try to learn at the least, a freshman level of understanding of these laws. Needless to say, it is always good to at least try. Peter Atkins and his Very Short Introduction proved to be an excellent resource to help me to develop at the minimum, a clearer and foundational understanding of the Laws of Thermodynamics.The best thing about this book is that Peter Atkins was asked to write it. He does quite an amazing job as far as taking the esoteric and making it as understandable and the least intimidating that it can possibly be. He writes clearly and speaks about the concepts behind the laws in a way that translates the material into common real life scenarios. Another great thing about the book is that he always makes sure to remind the reader of the subjects previously discussed as he moves on to the next topic. In other words, when starting a new subject or sub part of an overall subject, he reminds us of what was previously talked about and gives a very quick recap of the basics of that material.There is one drawback though. This drawback probably has more to do with the reader than anything Dr. Atkins has done though. It is in the last two chapters that things begin to get more technical than the first part of the book. This may require some extra reading and backtracking through the book to make sure that you understand everything clearly enough to get out of the book and its descriptions everything that Dr. Atkins is trying to teach. This means then, that for the beginner, this part is slightly more difficult than the earlier parts. It is not anything that Dr. Atkins does, it is just that the material gets a little heavier.Another plus of the book is that Atkins provides his reader with an excellent little text that will provide you with the basics and a little more. The further reading section at the end of the book will also give the person wanting to know more the capability to find other books that Dr. Atkins has given his seal of approval to.This was truly a well thought out, clear, and actually approachable book considering the topic and my own background. This should be a great book for a person wanting to know about the Laws of Thermodynamics or a person especially looking for a quick refresher on things that they learned previously. It should also prove especially helpful to a student of chemistry, physics or biology to use as a quick resource.

Peter Atkins promises at the outset that this will not be a light read, and it isn’t, at least not if you

want to really take it all in and much of it is new to you. Gibbs energy and Helmholtz energy are discussed, as are negative (below absolute zero) temperatures. For a very short introduction to the subject, it goes into considerable depth.You would need no more than an average grasp of High School math and science to follow the arguments completely, and not even that if you are just seeking a flavor of what the subject is about and are willing to settle for less than a thorough understanding.Atkins writes very well, with clarity, elegance and an infectious enthusiasm. There is certainly no lack of the latter - he describes these laws as 'a mighty handful' that drives the Universe, and claims that 'no other scientific law has contributed more to the liberation of the human spirit than the second law of Thermodynamics'. I'm not sure about that, but I do now appreciate the fundamental importance of these laws and how they are crucial to understanding how Nature works.[PeterReeve]

Excellent, expository treatments of the first and second laws. Every scientist should read this book. Brief with few equations. The author is a noted scientist. My only issue was being able to read the very small print. These are very small books!

This was a very nice overview of the history and meaning of the laws of thermodynamics. I really had an appreciation of what and why these laws are important and I got a good sense of what temperature is as well. The writing is succinct and interesting, but nothing more. The order of the book is structured in the order of the laws (starting with the law zero), and it presents analogies that I found especially helpful in grasping the meaning of the concepts. It is shorter than most others, but I think the suggested readings should point the curious reader in the right direction if she is inclined.I would also suggest those seeking more information about the 2nd law to look into Entropy Demystified: The Second Law Reduced to Plain Common Sense.

great informative book love the series

Professor Atkins comes across as an intellectual with a huge command of the English language and I betting most of his communication is with his intellectual peers. However, from my poorly educated point of view his use of language is difficult to follow. I bought this book thinking it was written to people that want a little more than a basic over view; and the book gives me that. I rate the books content and order in which the instruction is presented at five stars but the long sentences that have to be read and re-read are tough for me to follow. Is the book worth it - yes it is, and I would

recommend it.

This is the best work on thermodynamics for the non-professional reader, that I have seen

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