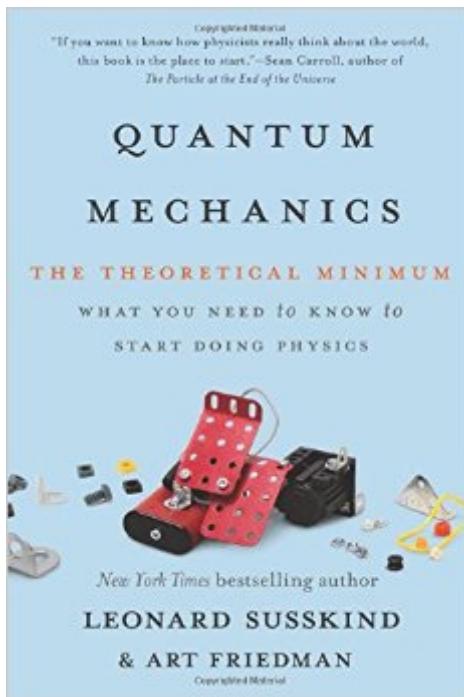


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Quantum Mechanics: The Theoretical Minimum



Synopsis

First he taught you classical mechanics. Now, physicist Leonard Susskind has teamed up with data engineer Art Friedman to present the theory and associated mathematics of the strange world of quantum mechanics. In this follow-up to the New York Times best-selling *The Theoretical Minimum*, Susskind and Friedman provide a lively introduction to this famously difficult field, which attempts to understand the behavior of sub-atomic objects through mathematical abstractions. Unlike other popularizations that shy away from quantum mechanics' weirdness, *Quantum Mechanics* embraces the utter strangeness of quantum logic. The authors offer crystal-clear explanations of the principles of quantum states, uncertainty and time dependence, entanglement, and particle and wave states, among other topics, and each chapter includes exercises to ensure mastery of each area. Like *The Theoretical Minimum*, this volume runs parallel to Susskind's eponymous Stanford University-hosted continuing education course. An approachable yet rigorous introduction to a famously difficult topic, *Quantum Mechanics* provides a tool kit for amateur scientists to learn physics at their own pace.

Book Information

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Customer Reviews

Professor Susskind's lecture series on YouTube are very popular and he deserves our thanks for his efforts. It is also wonderful that there is an audience that wishes to learn these subjects. It is assumed that you know linear algebra and complex variables. If you have not had these subjects or need a refresher, you will have a better time with this book if you study or review these subjects. I

would recommend the Cliff Quick Review of Linear Algebra by Leduc and Chapter 1 of Schaum's Complex Variables 2nd edition by Spiegel. They both have many worked out problems and the books are inexpensive. There are more expensive alternatives like Engineering Mathematics by Stroud or Shankar's Quantum Mechanics textbook which cover these areas. Susskind makes heavy use of spin and the Pauli Matrices as a basic model for quantum mechanics. A similar approach was taken in Jordan's Quantum Mechanic in Simple Matrix Form published in the 1980s and available on Dover. Susskind is a good teacher and further simplifies the math, probabilities, commutators, and operators to make the subject more easy to follow. The introductions to the Heisenberg Uncertainty Principle, Schrodinger Equation, and Entanglement are nicely done and are a good read. If you want to learn some concepts of basic Quantum Mechanics and are not adverse to the math described this book will fill that need. Learn or review the mentioned math first or you will be lost quickly. You need to know what a complex number is, why we need complex numbers, how to obtain a complex conjugate, and Euler's famous formula. Susskind covers this in three short pages which is unlikely to mean much to you if you do not remember or know the math. It will also help to watch the lectures on You Tube. The major flaw of the book is the excercises.

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