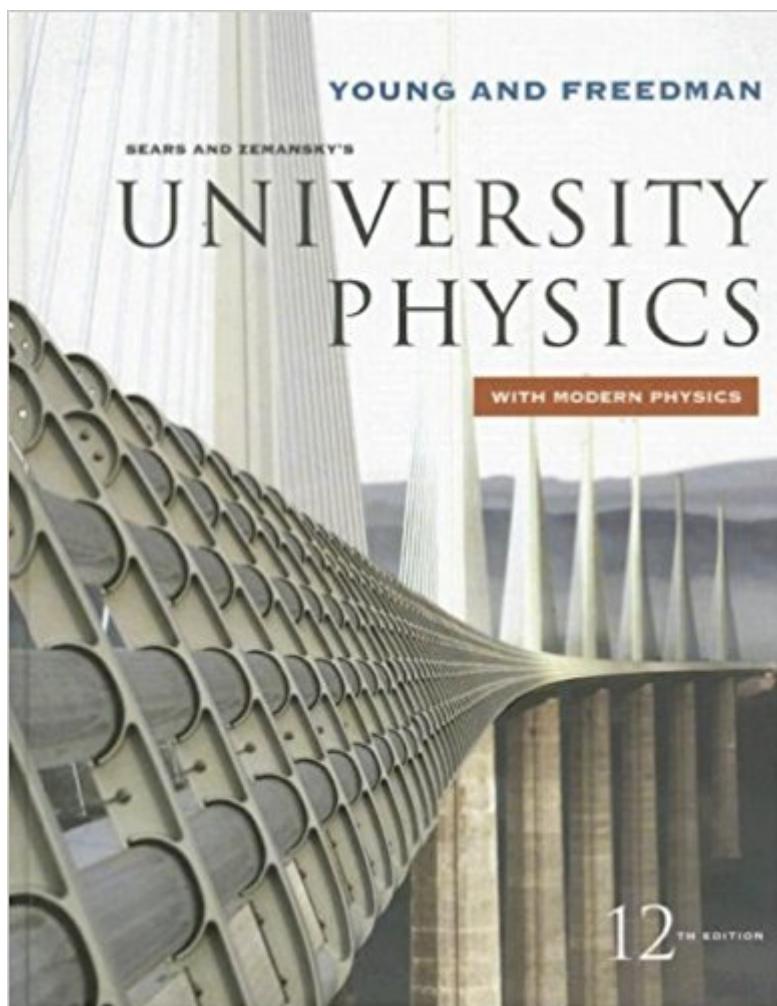


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# University Physics With Modern Physics (12th Edition)



## Synopsis

University Physics with Modern Physics, Twelfth Edition

## Book Information

Hardcover: 1632 pages

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## Customer Reviews

This book has clear explanations, nice pictures and good exercise problems. Interesting applications of physics like swiping of an ATM card and working of touchscreen devices are also mentioned. Exercise problems are categorized by section. Knowledge of differential and integral calculus is recommended, although you can learn a great deal even without it. Overall, this is simply the best introductory physics textbook out there! The following is the table of contents:

**MECHANICS**

- 1. Units, Physical Quantities, and Vectors
- 2. Motion Along a Straight Line
- 3. Motion in Two or Three Dimensions
- 4. Newton's Laws of Motion
- 5. Applying Newton's Laws
- 6. Work and Kinetic Energy
- 7. Potential Energy and Energy Conservation
- 8. Momentum, Impulse, and Collisions
- 9. Rotation of Rigid Bodies
- 10. Dynamics of Rotational Motion
- 11. Equilibrium and Elasticity
- 12. Fluid Mechanics
- 13. Gravitation
- 14. Periodic Motion

**WAVES/ACOUSTICS**

- 15. Mechanical Waves
- 16. Sound and Hearing

**THERMODYNAMICS**

- 17. Temperature and Heat
- 18. Thermal Properties of Matter
- 19. The First Law of Thermodynamics
- 20. The Second Law of Thermodynamics

**ELECTROMAGNETISM**

- 21. Electric Charge and Electric Field
- 22. Gauss's Law
- 23. Electric Potential
- 24. Capacitance and Dielectrics
- 25. Current, Resistance, and Electromotive Force
- 26. Direct-Current Circuits
- 27. Magnetic Field and Magnetic Forces
- 28. Sources of Magnetic Field
- 29. Electromagnetic Induction
- 30. Inductance
- 31. Alternating Current
- 32. Electromagnetic Waves

**OPTICS**

- 33. The Nature and Propagation of Light
- 34. Geometric Optics and Optical

Instruments35. Interference36. DiffractionMODERN PHYSICS37. Relativity38. Photons: Light Waves Behaving as Particles39. Particles Behaving as Waves40. Quantum Mechanics41. Atomic Structure42. Molecules and Condensed Matter43. Nuclear Physics44. Particle Physics and Cosmology

The University Physics book has the distinction from the College physics series to be complicated by calculus. This isn't the case. Calculus is a prominent topic when one studies kinematics and from then on, calculus isn't really a big deal. This book is the biggest book I have, for the simple fact, that there is an immense amount of material and also because they really take up a lot of space to discuss ideas. The highlight of this book is the modern physics portion, in which quantum mechanics, atomic physics, particle physics, relativity and cosmology is discussed. To me, the weakness of this book is fluid mechanics. However, there is quite enough on fluids if you want to take the MCAT, for example. There are a rich variety of problems that, when solved, allow you to pick up on certain tricks and learn different tools for attacking problems. Therefore, it is advised to pick up the solutions manual if you can. This is the only book I have in which the problem sets are just as valuable as the text.

I am very happy with this textbook. The set up and flow of each chapter is pretty much what I would hope for. Explanations range from adequate to excellent. The diagrams and graphics are very good and clear - excellent help for visualizing what is going on. My favorite part: the chapter summaries include distilled, categorized recaps of the mathematical relationships introduced during the chapter. Chapter reviews that are excellent for reviewing the chapter. The one thing I find myself not loving is how often examples and chapter questions require the reader to flip pages back & forth, referring the reader back to a previous example, sometimes in a previous chapter, in order to obtain the given information and/or picture required for the current example/question. In all fairness, I can understand why the author did it. The book is already mammoth. I just prefer examples & questions to be self-contained, is all. A minor nuisance: not enough for me to downrate the book. (The solutions manuals are an entirely different story, but-) This textbook is outstanding.

This is actually a pretty good physics book if you're just starting out. It has a ton of material and it goes fairly in-depth with most of the topics. My professor wasn't very good, and I so I was glad I was able to learn from the book alone. The practice problems are extremely useful and I really liked how they showed how to work them out in the textbook rather than trying to sell a separate solutions

manual like so many publishers do. It's a good book and nice introduction to physics.

All of the mechanics explanations are great but not for the light of heart. Some of the concepts get very hard very fast and make you feel like you missed some sort of a transition step in which you tackle and medium problem before a hard one. Its explanations of magnetism concepts needed to be fleshed out a bit better but I would say that overall the book performed decently in teaching me what I needed it to.

If you are looking for a single book containing all of college level physics, this is it. Being a single volume it does not contain the depth of each subject which more specialized physics texts contain. For the purpose of having an overview of nearly all general areas of physics, this is a great book. Recommended as a supplement for physics majors, with many problems to study for standardized exams.

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