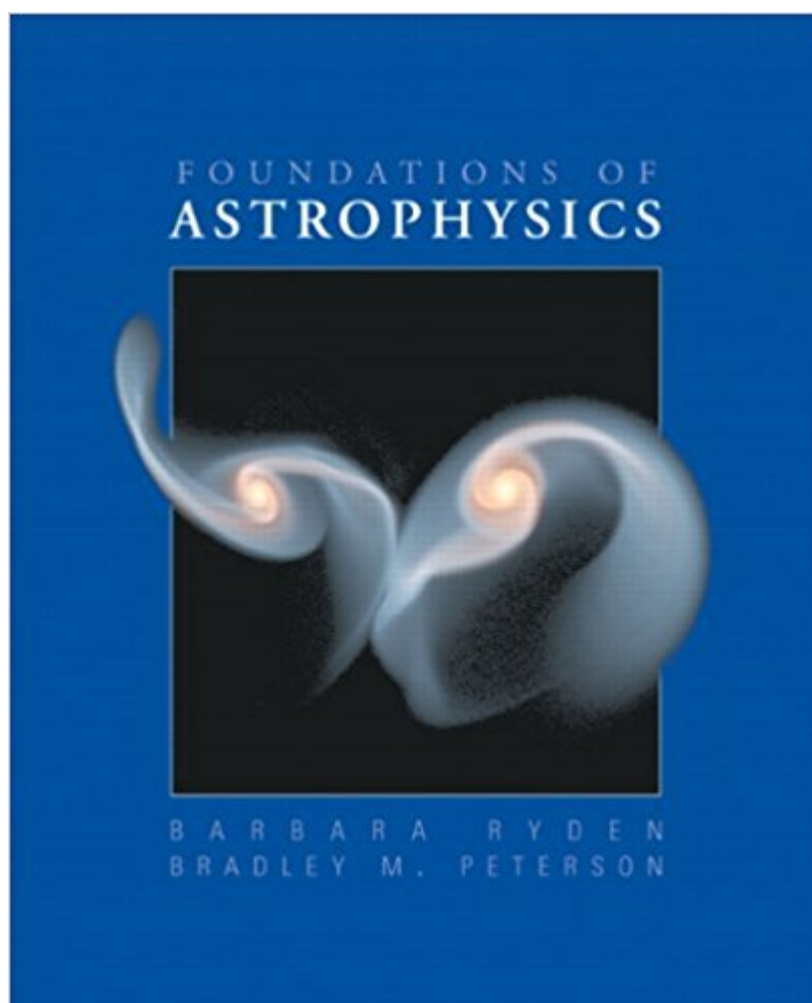


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# Foundations Of Astrophysics



## Synopsis

**Key Benefit:** Foundations of Astrophysics provides a contemporary and complete introduction to astrophysics for astronomy and physics majors. This book is briefer and more accessible than other books in the market, and is the most up-to-date book available in this fast-changing field. With a logical presentation and conceptual and quantitative end-of-chapter problems, the material is easier-to-grasp for introductory astrophysics readers. **Key Topics:** Early Astronomy, Emergence of Modern Astronomy, Orbital Mechanics, The Earth-Moon System, Interaction of Radiation and Matter, Astronomical Detection of Light, The Sun, Overview of the Solar System, Earth and Moon, The Planets, Small Bodies in the Solar System, The Solar System in Perspective, Properties of Stars, Stellar Atmospheres, Stellar Interiors, The Interstellar Medium, Formation and Evolution of Stars, Stellar Remnants, Our Galaxy, Galaxies, Active Galaxies, Clusters and Superclusters, Cosmology, History of the Universe **Market:** Intended for those interested in learning the basics of astrophysics

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Both Barbara Ryden and Brad Peterson are respected teachers and researchers at Ohio State University. Peterson serves as Department Chair. Ryden wrote the Chambliss Astronomical Writing Award winner, *Introduction to Cosmology*, a text for majors published by Addison-Wesley. Peterson wrote a text on *Active Galactic Nuclei* published by Cambridge University press.

This is a really good book for if you have a basic idea about most astrophysics concepts, but would like to know more.

The conceptual explanations in this textbook are mostly pretty good, and it has lots of supplementary facts and even some cute trivia about topics in astronomy in the footnotes. Where it does less well is in mathematical proof and explanation. Use a bigger, more established textbook if you want more of that. I used this book in conjunction with Carroll and Ostlie in my beginning astrophysics course, and together they explained concepts with great mathematical clarity AND conceptual clarity. Individually, neither book does both those things well. The chapters about planetary science are way more detailed and understandable than the chapters about stellar evolution, galaxies, and cosmology. Kind of obvious that the authors are not stellar astrophysicists. Carroll and Ostlie is way better at those topics. One note that I have to make about this book is that the index is pretty bad. It consisted mostly of terms I didn't care about and omitted stuff I actually wanted to find.

I find it good, however there are few places where the explanation is unclear, or the exercises state ideas strangely.

This is the required text for my Purdue Astrophysics classes... I was excited to be done with it after one class, then dismayed to find I needed it again in the following one. The text poses good

questions in the back of each section, but offers no way for you to check if you have any idea what you're doing. The derivations are often "left as an exercise for students," which would be useful if it weren't a book for forming a FOUNDATION of understanding in Astrophysics. If you, like me, are in the position of being stuck with this text as required reading, I would strongly recommend buying a used copy of Introduction to Modern Astrophysics by Carroll. It is a much better upper-level introduction with more intuitive explanations and actual derivations. Additionally, it goes more in depth and comes at a much better cost for what you are able to get out of it than this frustrating textbook. I love Astrophysics, but this textbook made me frustrated enough to seriously consider dropping my minor.

I really might give only 3.5 stars. Foundations of Astrophysics is packed full of information that should be mastered by any aspiring astrophysicist. Kepler's laws, properties of stars, the role and limitations of telescopes in astronomy, and other relevant topic areas are covered in detail sufficient for a one semester upper level, or a two semester 200 level undergraduate course. A notable shortcoming is the complete lack of answers to problems at the end of each chapter. Also, sample problems are not worked within each chapter. Consequently, I would not recommend this book for a self study program. I also found the text to be excessively chatty, with a frequent excess of words and/or phrases that added 30% to my reading time and 0% to my comprehension. However, the breadth and depth of coverage is impressive, and errors in the text are few.

It's an introductory text, but for students seeking to major in astrophysics or physics. You'll need calculus for this book. It's not very hard math, though, just some differentiation. All in all, it is a pretty standard text and you can learn a lot from it. It's also as boring as a log, so there's that.

Some sections of this book are not well written or have typos (with numbers, etc.) that confuse the meaning. But for the most part I found this book to be very useful for learning basic astronomy and astrophysics. The book is actually somewhat of an entertaining read, as there are numerous random, funny, and useful footnotes scattered throughout the book.

This is a very nice book. The content is very detail , fully explain concepts and derive formulas, which make it much easier to digest. It goes from the most basic astronomical knowledge of the Celestial Sphere to deriving the luminosity formula. I bought it and I have had no regrets so far!

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