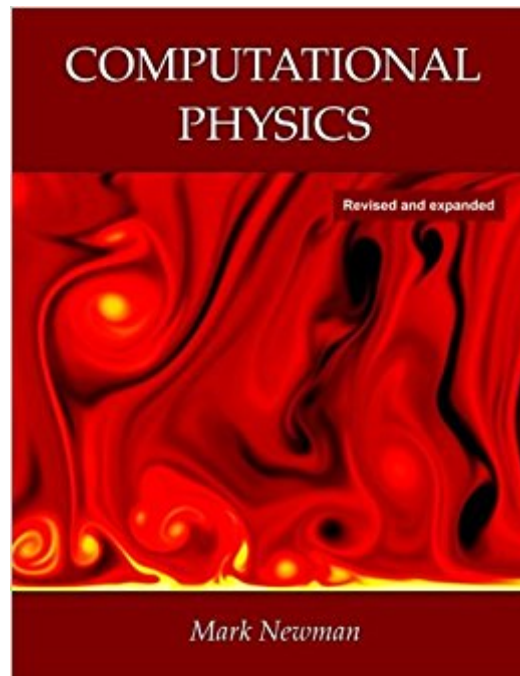


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# Computational Physics



## Synopsis

A complete introduction to the field of computational physics, with examples and exercises in the Python programming language. Computers play a central role in virtually every major physics discovery today, from astrophysics and particle physics to biophysics and condensed matter. This book explains the fundamentals of computational physics and describes in simple terms the techniques that every physicist should know, such as finite difference methods, numerical quadrature, and the fast Fourier transform. The book offers a complete introduction to the topic at the undergraduate level, and is also suitable for the advanced student or researcher who wants to learn the foundational elements of this important field.

## Book Information

Paperback: 562 pages

Publisher: CreateSpace Independent Publishing Platform (November 7, 2012)

Language: English

ISBN-10: 1480145513

ISBN-13: 978-1480145511

Product Dimensions: 7.4 x 1.3 x 9.7 inches

Shipping Weight: 2.7 pounds (View shipping rates and policies)

Average Customer Review: 4.6 out of 5 stars [See all reviews](#) (21 customer reviews)

Best Sellers Rank: #267,221 in Books (See Top 100 in Books) #150 in [Books > Science & Math > Physics > Mathematical Physics](#)

## Customer Reviews

This book is very well written and helpful. There are many examples throughout the book, and explanations are complete yet concise. The progression through topics is intuitive. It is very helpful that the author has a set of online supplemental materials available (eg sample code). Concepts are taught so that they can be applied to other programming languages with ease.

I'm a novice Python programmer, but yet I find this book very accessible, well-structured, clearly written, and comprehensive. I am only about halfway through this book but feel that it has really helped me learn both Python programming and solid numerical analysis skills. My only warning is that without a strong physics background the examples and problems may be a bit opaque, but with a strong physics background this book does an excellent job of connecting the physics with computational techniques.

As Eric Ayars said, there are a lot of good books about Python, a bunch of good books about computational physics but we got a lack of book about comp. phys. using Python 3. That's the one and it's a real good one. I got only a suggestion: more practical exercises but, you know, if you buy this book you've advanced in this subject a lot of the road probably...

Great text that covers essential concepts such as derivatives, integrals, ODES, PDE's. What I enjoy about this text is that it focuses on generalities and therefore has been of great use to me in writing algorithms for my own research. Would highly recommend to those folks who want to explore computational/physical/mathematical research/projects.

Four Stars for the excellent introduction to Python (+NumPy+Matplotlib). It loses the 5th star only because loading a working copy of the full library package took a week of intense digging through obscure (to me) Python community developer websites which were less than friendly to the Python newbie. I'm on a fairly new 64-bit HP EliteBook 8770w running Windows 7. Finally found a workable combination of beta-test library modules in one place, and an 8-step loading procedure summary buried deeply in a user forum on another site. In all it took 14 builds to get one fully-functional Python+NumPy+Matplotlib package. Guess I learned something from it but it took a lot of dogged determination. Now with a working software package I'm halfway through the book and learning a lot much less painfully. This is a fantastic step forward in programming tools for numerical design & analysis. And it's all free if you can charge your time off to training. In my toolbox this will be my preferred environment for going beyond MathCAD and controlling threading in modern 4-Core CPU's for 3-D transient magnetohydrodynamic modeling. - Don Cott, Thermal Systems Engineering, Anchorage, AK

Amazing book. I would recommend it to all Physics students, and anyone else who wants to learn more about math, programming and the physical world. This book is written so well that anyone can pick it up.

Great Book. I really liked it for python, it's impressive on how many example it provides you in order for your to understand the gist of python and once you get over Chapter 8, you get the heavy loads of python. The quality of the book was NEW, soft cover, non-glossy paper.

I absolutely love the physics in this book and it does a great job presenting a lot of the python concepts you will need to do amazing things. My only gripe is that it completely blows off object oriented principles and their benefits which is a crime. You will want to learn more about OO for larger scale and maintainable applications as you do more. Aside from that it is very well written and a pleasure to read and work with.

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