In this extensively revised and updated edition, James Binney and Scott Tremaine describe the dramatic recent advances in this subject, making Galactic Dynamics the most authoritative introduction to galactic astrophysics available to advanced undergraduate students, graduate students, and researchers.

High-energy astrophysics involves the study of exceedingly dynamic and energetic phenomena occurring near the most extreme celestial objects known to exist, such as black holes, neutron stars, white dwarfs, and supernova remnants. This textbook covers all the essentials, weaving together the latest theory with the experimental techniques, instrumentation, and observational methods astronomers use to study high-energy radiation from space.

This is a comprehensive and richly illustrated textbook on the astrophysics of the interstellar and intergalactic medium—the gas and dust, as well as the electromagnetic radiation, cosmic rays, and magnetic and gravitational fields, present between the stars in a galaxy and also between galaxies themselves.

Definitive and encyclopedic, this book introduces the astrophysics of spectroscopy, reviews the entire field of stellar astronomy, and shows how the well-tested methods of spectral classification are a powerful discovery tool for graduate students and researchers working in astronomy and astrophysics.
Classical Electromagnetism in a Nutshell (ISE)
Anupam Garg
Hbk | 712pp | 9780691130187 | 8/04/2012
AS96 | NZ$115 | Princeton University Press
This graduate-level physics textbook provides a comprehensive treatment of the basic principles and phenomena of classical electromagnetism. While many electromagnetism texts use the subject to teach mathematical methods of physics, here the emphasis is on the physical ideas themselves.

Group Theory in a Nutshell for Physicists
A Zee
Hbk | 632pp | 9780691162690 | 22/02/2016
AS172 | NZ$203 | Princeton University Press
Group Theory in a Nutshell for Physicists provides a user-friendly and classroom-tested text that focuses on those aspects of group theory physicists most need to know. From the basic intuitive notion of a group, A. Zee takes readers all the way up to how theories based on gauge groups could unify three of the four fundamental forces. He also includes a concise review of the linear algebra needed for group theory, making the book ideal for self-study.

Quantum Mechanics in a Nutshell (ISE)
Gerald D Mahan
Hbk | 416pp | 9780691137131 | 18/01/2009
AS81 | NZ$95 | Princeton University Press
Covering the fundamentals as well as many special topics of current interest, this is the most concise, up-to-date, and accessible graduate-level textbook on quantum mechanics available.

Elementary Particle Physics in a Nutshell (ISE)
Christopher G. Tully
Hbk | 320pp | 9780691131160 | 30/10/2011
AS79 | NZ$94 | Princeton University Press
The new experiments underway at the Large Hadron Collider at CERN in Switzerland may significantly change our understanding of elementary particle physics and, indeed, the universe. This textbook provides a cutting-edge introduction to the field, preparing first-year graduate students and advanced undergraduates to understand and work in LHC physics at the dawn of what promises to be an era of experimental and theoretical breakthroughs.

Condensed Matter in a Nutshell (ISE)
Gerald D Mahan
Hbk | 552pp | 9780691140162 | 24/10/2010
AS91 | NZ$109 | Princeton University Press
This premier textbook covers all the standard topics, including crystal structures, energy bands, phonons, optical properties, ferroelectricity, superconductivity, and magnetism. It includes in-depth discussions of transport theory, nanoscience, and semiconductors, and also features the latest experimental advances in this fast-developing field, such as high-temperature superconductivity, the quantum Hall effect, graphene, nanotubes, localization, Hubbard models, density functional theory, phonon focusing, and Kapitza resistance.

The Standard Model in a Nutshell
Dave Goldberg
Hbk | 320pp | 9780691167596 | 8/01/2017
AS159 | NZ$187 | Princeton University Press
Dave Goldberg uses a "just-in-time" approach to instruction that enables students to gradually develop a deep understanding of the Standard Model even if this is their first exposure to it. He covers everything from relativity, group theory, and relativistic quantum mechanics to the Higgs boson, unification schemes, and physics beyond the Standard Model. The book also looks at new avenues of research that could answer still-unresolved questions and features numerous worked examples, helpful illustrations, and more than 120 exercises.

Quantum Many-Body Physics in a Nutshell
Edward Shuryak
Hbk | 312pp | 9780691175607 | 27/09/2018
AS138 | NZ$161 | Princeton University Press
The ideal textbook for a one-semester introductory course for graduate students or advanced undergraduates

String Theory in a Nutshell (ISE)
Eliau Kiritis
Hbk | 608pp | 9780691122304 | 8/04/2007
AS91 | NZ$109 | Princeton University Press
This book is the essential new introduction to modern string theory, by one of the world’s authorities on the subject. Concise, clearly presented, and up-to-date, String Theory in a Nutshell brings together the best understood and most important aspects of a theory that has been evolving since the early 1980s. A core model of physics that substitutes one-dimensional extended "strings" for zero-dimensional point-like particles (as in quantum field theory), string theory has been the leading candidate for a theory that would successfully unify all fundamental forces of nature, including gravity.
Applications of Modern Physics in Medicine
Mark Strikman, Kevork Spartalian and Milto

Many remarkable medical technologies, diagnostic tools, and treatment methods have emerged as a result of modern physics discoveries in the last century—including X-rays, radiation treatment, laser surgery, high-resolution ultrasound scans, computerized tomography (CT) scans, and magnetic resonance imaging. This undergraduate-level textbook describes the fundamental physical principles underlying these technological advances, emphasizing their applications to the practice of modern medicine.

Asteroseismic Data Analysis: Foundations and Techniques
Sarbani Basu and William Chaplin

Studies of stars and stellar populations, and the discovery and characterization of exoplanets, are being revolutionized by new satellite and telescope observations of unprecedented quality and scope. Some of the most significant advances have been in the field of asteroseismology, the study of stars by observation of their oscillations. Asteroseismic Data Analysis gives a comprehensive technical introduction to this discipline. This book not only helps students and researchers learn about asteroseismology; it also serves as an essential instruction manual for those entering the field.

Biophysics: Searching for Principles (ISE)
William Bialek

Interactions between the fields of physics and biology reach over a century, and some of the most significant developments in biology—from the discovery of DNA’s structure to imaging of the human brain—have involved collaboration across this disciplinary boundary. For a new generation of physicists, the phenomena of life pose exciting challenges to physics itself, and biophysics has emerged as an important subfield of this discipline. Here, William Bialek provides the first graduate-level introduction to biophysics aimed at physics students.

An Introduction to X-Ray Physics, Optics, and Applications
Carolyn MacDonald

In this book, Carolyn MacDonald provides a comprehensive introduction to the physics of a wide range of x-ray applications, optics, and analysis tools. Theory is applied to practical considerations of optics and applications ranging from astronomy to medical imaging and materials analysis.
Mathematical Methods for Geophysics and Space Physics
William Newman
Hbk | 272pp | 9780691170602 | 17/05/2016
AS138 | NZS161 | Princeton University Press
This authoritative and accessible book covers everything from the elements of vector and tensor analysis to ordinary differential equations, special functions, and chaos and fractals. Other topics include integral transforms, complex analysis, and inverse theory; partial differential equations of mathematical geophysics; probability, statistics, and computational methods; and much more.

The Physicist's World: The Story of Motion and the Limits to Knowledge
Thomas Grissom
Pbk | 320pp | 9781421400846 | 5/07/2011
A$66 | NZ$78 | Johns Hopkins University Press
How do students learn about physics without picking up a 1,000-page textbook chock-full of complicated equations? The Physicist's World is the answer. Here, Thomas Grissom explains clearly and succinctly what physics really is: the science of understanding how everything in the universe moves.

Mere Thermodynamics
Don S. Lemons
Pbk | 224pp | 9780801890154 | 3/11/2008
A$69 | NZ$81 | Johns Hopkins University Press
Presenting classic thermodynamics as a concise and discrete whole, Mere Thermodynamics is a perfect tool for teaching a notoriously difficult subject. Don S. Lemons introduces the physical theory's concepts and methods and uses them to solve common physics problems, illustrating at a gentle pace advanced concepts such as the relationship between the second law of thermodynamics and entropy.

Physics and Technology for Future Presidents: An Introduction to the Essential Physics Every World Leader Needs to Know (ISE)
Richard A. Muller
Hbk | 536pp | 9780691135045 | 2/05/2010
A$102 | NZ$122 | Princeton University Press
Physics and Technology for Future Presidents contains the essential physics that students need in order to understand today's core science and technology issues, and to become the next generation of world leaders. From the physics of energy to climate change, and from spy technology to quantum computers, this is the only textbook to focus on the modern physics affecting the decisions of political leaders and CEOs and, consequently, the lives of every citizen.

Operads, Strings And Deligne's Conjecture: A Text For Mathematicians And Physicists
Ralph M Kaufmann
Hbk | 300pp | 9789812775962 | 30/06/2018
A$135 | NZ$158 | World Scientific Publishing Co
Operads provide a universal language to relate several disciplines in mathematics and physics. The focus of this book, which is the first of its kind, is the particularly striking relation between algebra, topology and string theory that is mediated by operads of graphs and surfaces in their role as a model of the correlation functions of quantum field theory.

Physics: A Student Companion
Lowry Kirkby
Pbk | 416pp | 9781904842682 | 7/10/2011
A$69 | NZ$83 | Scion Publishing Ltd
Physics: A Student Companion offers readers a thorough overview of basic physics with rapid access to fundamental concepts and their derivations. Covering the core fields of mechanics and relativity, electromagnetism, waves and optics, quantum mechanics, and thermal physics, this book is an essential learning tool for students, as well as a handy reference for graduates and researchers in the physical sciences.

Photonic Crystals: Molding the Flow of Light (ISE)
John Joannopoulos, Steven Johnson, Joshua Winn
Hbk | 304pp | 9780691124968 | 2/03/2008
A$86 | NZ$102 | Princeton University Press
This newly expanded and revised edition covers the latest developments in the field of photonics, providing the most up-to-date, concise, and comprehensive book available on these novel materials and their applications.

Principles of Laser Spectroscopy and Quantum Optics
Paul R. Berman and Vladimir S. Malinovsky
Hbk | 544pp | 9780691140568 | 2/01/2011
A$213 | NZ$250 | Princeton University Press
Principles of Laser Spectroscopy and Quantum Optics is an essential textbook for graduate students studying the interaction of optical fields with atoms. It also serves as an ideal reference text for researchers working in the fields of laser spectroscopy and quantum optics.
A Survey of Computational Physics (ISE)
Rubin H Landau, Manual Jose Paez and Chris 

Computational physics is a rapidly growing subfield of computational science, in large part because computers can solve previously intractable problems or simulate natural processes that do not have analytic solutions. The next step beyond Landau’s First Course in Scientific Computing and a follow-up to Landau and Paez’s Computational Physics, this text presents a broad survey of key topics in computational physics for advanced undergraduates and beginning graduate students, including new discussions of visualization tools, wavelet analysis, molecular dynamics, and computational fluid dynamics.

Why You Hear What You Hear: An Experiential Approach to Sound, Music, and Psychoacoustics (ISE)
Eric J Heller

This textbook provides a comprehensive treatment of visual psychophysics, teaching not only basic techniques but also sophisticated data analysis methodologies and theoretical approaches. The text’s treatment of experimental designs presents the most commonly used psychophysical paradigms, theory-driven psychophysical experiments, and the analysis of these procedures in a signal-detection theory framework.

Visual Psychophysics: From Laboratory to Theory
Zhong-Lin Lu and Barbara Dosher

This comprehensive text introduces advanced undergraduate students, graduate students, and researchers to the statistical and algebraic methods used to analyze spatiotemporal data in a range of fields, including climate science, geophysics, ecology, astrophysics, and medicine.

The Quantum Vacuum: A Scientific and Philosophical Concept, from Electrodynamics to String Theory and the Geometry of the Microscopic World
Luciano Boi

Beyond the physics and mathematics of the quantum vacuum, Boi offers a deeply philosophical interpretation of the concept. Plato and Aristotle did not believe a vacuum was possible. How could nothing be something, they asked? Boi traces the evolution of the quantum vacuum from an abstract concept in ancient Greece to its fundamental role in quantum field theory and string theory in modern times.

Topological Insulators and Topological Superconductors
B Andrei Bernevig and Taylor L Hughes

This graduate-level textbook is the first pedagogical synthesis of the field of topological insulators and superconductors, one of the most exciting areas of research in condensed matter physics. Presenting the latest developments, while providing all the calculations necessary for a self-contained and complete description of the discipline, it is ideal for graduate students and researchers preparing to work in this area, and it will be an essential reference both within and outside the classroom.

Spatiotemporal Data Analysis (ISE)
Gidon Eshel

This comprehensive text introduces advanced undergraduate students, graduate students, and researchers to the statistical and algebraic methods used to analyze spatiotemporal data in a range of fields, including climate science, geophysics, ecology, astrophysics, and medicine.

Statistical and Thermal Physics: With Computer Applications (ISE)
Harvey Gould and Jan Tobochnik

This textbook carefully develops the main ideas and techniques of statistical and thermal physics. Statistical and Thermal Physics begins with a qualitative discussion of the relation between the macroscopic and microscopic worlds and incorporates computer simulations throughout the book to provide concrete examples of important conceptual ideas.

A$99  |  NZ$119 | Princeton University Press
Hbk  |  688pp  |  9780691131375  |  21/07/2008
Rubin H Landau, Manual Jose Paez and Chris 
Computational Physics, this text presents a broad survey of key topics in computational physics for advanced undergraduates and beginning graduate students, including new discussions of visualization tools, wavelet analysis, molecular dynamics, and computational fluid dynamics.

Visual Psychophysics: From Laboratory to Theory
Zhong-Lin Lu and Barbara Dosher
Hbk | 464pp | 978069219453 | 11/10/2013
A$136  |  NZ$159 | MIT Press
Zhong-Lin Lu and Barbara Dosher

Why You Hear What You Hear is the first book on sound for the nonspecialist to empower readers with a hands-on, ears-open approach that includes production, analysis, and perception of sound. The book makes possible a deep intuitive understanding of many aspects of sound, as opposed to the usual approach of mere description.
Catch Up Maths and Stats: For the Life and Medical Sciences 2ed
Michael Harris, Gordon Taylor and Jacquely
Phk | 240pp | 9781904842903 | 10/06/2013
$A43.99 | NZ$51.99 | Scion Publishing Ltd
Catch Up Maths and Stats covers the core maths skills you will need on any life or medical sciences course including: working with fractions and powers; preparation of a dilution series; how to calculate standard deviation; using and understanding graphs; analysing enzyme kinetics; and choosing the right statistical test. Over 200 examples are provided to show the relevance and application of maths and stats to your course.

Modeling with Data: Tools and Techniques for Scientific Computing (ISE)
Ben Klemens
Hbk | 472pp | 9780691133140 | 26/10/2008
$A69 | NZ$58 | Princeton University Press
Modelling with Data fully explains how to execute computationally intensive analyses on very large data sets, showing readers how to determine the best methods for solving a variety of different problems, how to create and debug statistical models, and how to run an analysis and evaluate the results.

A Student's Guide to Python for Physical Modeling (Updated Edition)
Jesse Kinder and Philip Nelson
Phk | 168pp | 9780691180571 | 1/01/2018
$A48.99 | NZ$57.99 | Princeton University Press
Python is a computer programming language that is rapidly gaining popularity throughout the sciences. This fully updated edition of A Student's Guide to Python for Physical Modeling aims to help you, the student, teach yourself enough of the Python programming language to get started with physical modeling. You will learn how to install an open-source Python programming environment and use it to accomplish many common scientific computing tasks: importing, exporting, and visualizing data; numerical analysis; and simulation. No prior programming experience is assumed.

Writing Successful Science Proposals 3ed
Andrew J Friedland, Carol L Folt and Jenni
Phk | 288pp | 9780300226706 | 11/08/2018
$A37.99 | NZ$44.99 | Yale University Press
This fully revised edition of the authoritative guide to science proposal writing is an essential tool for any student embarking on a grant or thesis application. In accessible steps, the authors detail every stage of proposal writing, from conceiving and designing a project to analysing data, synthesising results, estimating a budget, and addressing reviewer comments and resubmitting. This new edition is updated to address changes and developments over the past decade.

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