

## Foundations Of Astrophysics Ryden

*Inflationary cosmology has been developed over the last twenty years to remedy serious shortcomings in the standard hot big bang model of the universe. This textbook, first published in 2005, explains the basis of modern cosmology and shows where the theoretical results come from. The book is divided into two parts; the first deals with the homogeneous and isotropic model of the Universe, the second part discusses how inhomogeneities can explain its structure. Established material such as the inflation and quantum cosmological perturbation are presented in great detail, however the reader is brought to the frontiers of current cosmological research by the discussion of more speculative ideas. An ideal textbook for both advanced students of physics and astrophysics, all of the necessary background material is included in every chapter and no prior knowledge of general relativity and quantum field theory is assumed.*

*Essential Astrophysics is a book to learn or teach from, as well as a fundamental reference volume for anyone interested in astronomy and astrophysics. It presents astrophysics from basic principles without requiring any previous study of astronomy or astrophysics. It serves as a comprehensive introductory text, which takes the student through the field of astrophysics in lecture-sized chapters of basic physical principles applied to the cosmos. This one-semester overview will be enjoyed by undergraduate students with an interest in the physical sciences, such as astronomy, chemistry, engineering or physics, as well as by any curious student interested in learning about our celestial science. The mathematics required for understanding the text is on the level of simple algebra, for that is all that is needed to describe the fundamental principles. The text is of sufficient breadth and depth to prepare the interested student for more advanced specialised courses in the future. Astronomical examples are provided throughout the text, to reinforce the basic concepts and physics, and to demonstrate the use of the relevant formulae. In this way, the student learns to apply the fundamental equations and principles to cosmic objects and situations. Astronomical and physical constants and units as well as the most fundamental equations can be found in the appendix. Essential Astrophysics goes beyond the typical textbook by including references to the seminal papers in the field, with further reference to recent applications, results, or specialised literature.*

*That trees should have been cut down to provide paper for this book was an ecological affront. From a book review. – Anthony Blond (in the Spectator, 1983) The first modern text on our subject, Structure and Evolution of the Stars, was published over thirty years ago. In it, Martin Schwarzschild described numerical experiments that successfully reproduced most of the observed properties of the majority of stars seen in the sky. He also set the standard for a lucid description of the physics of stellar interiors. Ten years later, in 1968, John P. Cox's two-volume monograph Principles of Stellar Structure appeared, as did the more specialized text Principles of Stellar Evolution and Nucleosynthesis by Donald D. Clayton—and what a difference ten years had made. The field had matured into the basic form that it remains today. The past twenty-plus years have seen this branch of astrophysics flourish and develop into a fundamental pillar of modern astrophysics that addresses an enormous variety of phenomena. In view of this it might seem foolish to offer another text of finite length and expect it to cover any more than a fraction of what should be discussed to make it a thorough and self-contained reference. Well, it doesn't. Our specific aim is to introduce only the fundamentals of stellar astrophysics. You will find little reference here to black holes, millisecond pulsars, and other "sexy" objects.*

*A complete and comprehensive treatment of the physics of the stellar interior and the underlying fundamental processes and parameters. The text presents an overview of the models developed to explain the stability, dynamics and evolution of the stars, and great care is taken to detail the various stages in a star's life. The authors have succeeded in producing a unique text based on their own pioneering work in stellar modeling. Since its publication, this textbook has come to be considered a classic by both readers and teachers in astrophysics. This study edition is intended for students in astronomy and physics alike.*

*Describes the branch of astronomy in which processes in the universe are investigated with experimental methods employed in particle-physics experiments. After a historical introduction the basics of elementary particles, Explains particle interactions and the relevant detection techniques, while modern aspects of astroparticle physics are described in a chapter on cosmology. Provides an orientation in the field of astroparticle physics that many beginners might seek and appreciate because the underlying physics fundamentals are presented with little mathematics, and the results are illustrated by many diagrams. Readers have a chance to enter this field of astronomy with a book that closes the gap between expert and popular level.*

### Astroparticle Physics

#### Supernova Explosions

#### AN INTRODUCTION TO ASTROPHYSICS

#### The Cambridge Photographic Atlas of Galaxies

#### Astrophysics for Physicists

*An account of classic and contemporary aspects of astrophysics, with an emphasis on analytical calculations and physical understanding.*

*A substantial update of this award-winning and highly regarded cosmology textbook, for advanced undergraduates in physics and astronomy.*

*Targeting advanced students of astronomy and physics, as well as astronomers and physicists contemplating research on supernovae or related fields, David Branch and J. Craig Wheeler offer a modern account of the nature, causes and consequences of supernovae, as well as of issues that remain to be resolved. Owing especially to (1) the appearance of supernova 1987A in the nearby Large Magellanic Cloud, (2) the spectacularly successful use of supernovae as distance indicators for cosmology, (3) the association of some supernovae with the enigmatic cosmic gamma-ray bursts, and (4) the discovery of a class of superluminous supernovae, the pace of supernova research has been increasing sharply. This monograph serves as a broad survey of modern supernova research and a guide to the current literature. The book's emphasis is on the explosive phases of supernovae. Part 1 is devoted to a survey of the kinds of observations that inform us about supernovae, some basic interpretations of such data, and an overview of the evolution of stars that brings them to an explosive endpoint. Part 2 goes into more detail on core-collapse and superluminous events: which kinds of stars produce them, and how do they do it? Part 3 is concerned with the stellar progenitors and explosion mechanisms of thermonuclear (Type Ia) supernovae. Part 4 is about consequences of supernovae and some applications to astrophysics and cosmology. References are provided in sufficient number to help the reader enter the literature.*

*The study of stellar dynamics is experiencing an exciting new wave of interest thanks to observational campaigns and the ready availability of powerful computers. Whilst its relevance includes many areas of astrophysics, from the structure of the Milky Way to dark matter halos, few texts are suited to advanced students. This volume provides a broad overview of the key concepts beyond the elementary level, bridging the gap between the standard texts and specialist literature. The author reviews Newtonian gravity in depth before examining the dynamical properties of collisional and collisionless stellar-dynamical systems that result from gravitational interactions. Guided examples and exercises ensure a thorough grounding in the mathematics, while discussions of important practical applications give a complete picture of the subject. Readers are given a sound working knowledge of the fundamental ideas and techniques employed in the field and the conceptual background needed to progress to more advanced graduate-level treatises.*

*Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780321595584 .*

#### Essential Astrophysics

#### Death by Black Hole: And Other Cosmic Quandaries

#### Astrophysics for Young People in a Hurry

#### Foundations of Astrophysics

#### Modern Cosmological Observations and Problems

The first comprehensive graduate-level textbook on one of the most dynamic areas of contemporary astronomy - the study of 'active galactic nuclei'.

A complete and in-depth review of exoplanet research, covering the discovery methods, physics and theoretical background.

This invaluable book, now in its second edition, covers a wide range of topics appropriate for both undergraduate and postgraduate courses in astrophysics. The book conveys a deep and coherent understanding of the stellar phenomena, and basic astrophysics of stars, galaxies, clusters of galaxies and other heavenly bodies of interest. Since the first appearance of the book in 1997, significant progress has been made in different branches of Astronomy and Astrophysics. The second edition takes into account the developments of the subject which have taken place in the last decade. It discusses the latest introduction of L and T dwarfs in the Hertzsprung-Russel diagram (or H-R diagram). Other developments discussed pertain to standard solar model, solar neutrino puzzle, cosmic microwave background radiation, Drake equation, dwarf galaxies, ultra compact dwarf galaxies, compact groups and cluster of galaxies. Problems at the end of each chapter motivate the students to go deeper into the topics. Suggested readings at the end of each chapter have been complemented.

An Introduction to Stellar Astrophysics aspires to provide the reader with an intermediate knowledge on stars whilst focusing mostly on the explanation of the functioning of stars by using basic physical concepts and observational results. The book is divided into seven chapters, featuring both core and optional content: Basic concepts Stellar Formation Radiative Transfer in Stars Stellar Atmospheres Stellar Interiors Nucleosynthesis and Stellar Evolution and Chemically Peculiar Stars and Diffusion. Student-friendly features include: Detailed examples to help the reader better grasp the most important concepts A list of exercises is given at the end of each chapter and answers to a selection of these are presented. Brief recalls of the most important physical concepts needed to properly understand stars. A summary for each chapter Optional and advanced sections are included which may be skipped without interfering with the flow of the core content. This book is designed to cover the most important aspects of stellar astrophysics inside a one semester (or half-year) course and as such is relevant for advanced undergraduate students following a first course on stellar astrophysics, in physics or astronomy programs. It will also serve as a basic reference for a full-year course as well as for researchers working in related fields.

Professor Roger Woodard brings together a group of the world's most authoritative scholars of classical myth to present a thorough treatment of all aspects of Greek mythology. Sixteen original articles guide the reader through all aspects of the ancient mythic tradition and its influence around the world and in later years. The articles examine the forms and uses of myth in Greek oral and written literature, from the epic poetry of 8th century BC to the mythographic catalogues of the early centuries AD. They examine the relationship between myth, art, religion and politics among the ancient Greeks and its reception and influence on later society from the Middle Ages to present day literature, feminism and cinema. This Companion volume's comprehensive coverage makes it ideal reading for students of Greek mythology and for anyone interested in the myths of the ancient Greeks and their impact on western tradition.

#### Principles of Astrophysics

#### Introduction to Cosmology

#### Fundamental Astronomy

#### An Introduction to Astronomy and Astrophysics

#### An Introduction to Modern Cosmology

**Galaxies - the Milky Way's siblings - offer a surprising variety of forms and colours. Displaying symmetrical spiral arms, glowing red nebulae or diffuse halos, even the image of a galaxy can reveal much about its construction. All galaxies consist of gas, dust and stars, but the effects of gravity, dark matter and the interaction of star formation and stellar explosions all influence their appearances. This volume showcases more than 250 of the most beautiful galaxies within an amateur's reach and uses them to explain current astrophysical research. It features fantastic photographs, unique insights into our knowledge, tips on astrophotography and essential facts and figures based on the latest science. From the Andromeda Galaxy to galaxy clusters and gravitational lenses, the nature of galaxies is revealed through these stunning amateur photographs. This well illustrated reference atlas deserves a place on the bookshelves of astronomical imagers, observers and armchair enthusiasts.**

**The ideal one-semester astrophysics introduction for science undergraduates—now expanded and fully updated Winner of the American Astronomical Society's Chambliss Award, Astrophysics in a Nutshell has become the text of choice in astrophysics courses for science majors at top universities in North America and beyond. In this expanded and fully updated second edition, the book gets even better, with a new chapter on extrasolar planets; a greatly expanded chapter on the interstellar medium; fully updated facts and figures on all subjects, from the observed properties of white dwarfs to the latest results from precision cosmology; and additional instructive problem sets. Throughout, the text features the same focused, concise style and emphasis on physics intuition that have made the book a favorite of students and teachers. Written by Dan Maoz, a leading active researcher, and designed for advanced undergraduate science majors, Astrophysics in a Nutshell is a brief but thorough introduction to the observational data and theoretical concepts underlying modern astronomy. Generously illustrated, it covers the essentials of modern astrophysics, emphasizing the common physical principles that govern astronomical phenomena, and the interplay between theory and observation, while also introducing subjects at the forefront of modern research, including black holes, dark matter, dark energy, and gravitational lensing. In addition to serving as a course textbook, Astrophysics in a Nutshell is an ideal review for a qualifying exam and a handy reference for teachers and researchers. The most concise and current astrophysics textbook for science majors—now expanded and fully updated with the latest research results Contains a broad and well-balanced selection of traditional and current topics Uses simple, short, and clear derivations of physical results Trains students in the essential skills of order-of-magnitude analysis Features a new chapter on extrasolar planets, including discovery techniques Includes new and expanded sections and problems on the physics of shocks, supernova remnants, cosmic-ray acceleration, white dwarf properties, baryon acoustic oscillations, and more Contains instructive problem sets at the end of each chapter Solutions manual (available only to professors)**

**This work provides a contemporary and complete introduction to astrophysics for astronomy and physics majors. With a logical presentation and conceptual and quantitative end-of-chapter problems, the material is easy to understand and ideal for astrophysics students.**

**A clear, concise introduction to all the major features of solar system dynamics, ideal for a first course.**

**Designed for teaching astrophysics to physics students at advanced undergraduate or beginning graduate level, this textbook also provides an overview of astrophysics for astrophysics graduate students, before they delve into more specialized volumes. Assuming background knowledge at the level of a physics major, the textbook develops astrophysics from the basics without requiring any previous study in astronomy or astrophysics. Physical concepts, mathematical derivations and observational data are combined in a balanced way to provide a unified treatment. Topics such as general relativity and plasma physics, which are not usually covered in physics courses but used extensively in astrophysics, are developed from first principles. While the emphasis is on developing the fundamentals thoroughly, recent important discoveries are highlighted at every stage.**

#### The Biological Universe

#### An Introduction to Thermal Physics

#### Physical Foundations of Cosmology

#### Physical Principles, Structure, and Evolution

#### Stellar Structure and Evolution

This is a textbook for the standard undergraduate-level course in thermal physics. The book explores applications to engineering, chemistry, biology, geology, atmospheric science, astrophysics, cosmology, and everyday life.

Foundations of Astrophysics provides a contemporary and complete introduction to astrophysics for astronomy and physics majors. With a logical presentation and conceptual and quantitative end-of-chapter problems, the material is accessible to introductory astrophysics students taking a two-semester survey course. Starting with the motions of the solar system and a discussion of the interaction of matter and light, the authors explore the physical nature of objects in the solar system, and the exciting new field of exoplanets. The second half of their text covers stellar, galactic, and extragalactic astronomy, followed by a brief discussion of cosmology. This is a reissue of the original 2010 edition, which has established itself as one of the market-leading astrophysics texts, well known for its clarity and simplicity. It has introduced thousands of physical science students to the breadth of astronomy, and helped prepare them for more advanced studies.

The Solar System is a complex and fascinating dynamical system. This is the first textbook to describe comprehensively the dynamical features of the Solar System and to provide students with all the mathematical tools and physical models they need to understand how it works. It is a benchmark publication in the field of planetary dynamics and destined to become a classic. Clearly written and well illustrated, Solar System Dynamics shows how a basic knowledge of the two- and three-body problems and perturbation theory can be combined to understand features as diverse as the tidal heating of Jupiter's moon Io, the origin of the Kirkwood gaps in the asteroid belt, and the radial structure of Saturn's rings. Problems at the end of each chapter and a free Internet Mathematica® software package are provided. Solar System Dynamics provides an authoritative textbook for courses on planetary dynamics and celestial mechanics. It also equips students with the mathematical tools to tackle broader courses on dynamics, dynamical systems, applications of chaos theory and non-linear dynamics.

This exciting text opens the entire field of modern astrophysics to the reader by using only the basic tools of physics. Designed for the junior- level astrophysics course, each topic is approached in the context of the major unresolved questions in astrophysics. The core chapters have been designed for a course in stellar structure and evolution, while the extended chapters provide additional coverage of the solar system, galactic structure, dynamics, evolution, and cosmology.

Neil deGrasse Tyson's #1 New York Times best-selling guide to the cosmos, adapted for young readers. From the basics of physics to big questions about the nature of space and time, celebrated astrophysicist and science communicator Neil deGrasse Tyson breaks down the mysteries of the cosmos into bite-sized pieces. Astrophysics for Young People in a Hurry describes the fundamental rules and unknowns of our universe clearly—and with Tyson's characteristic wit, there's a lot of fun thrown in, too. This adaptation by Gregory Mone includes full-color photos, infographics, and extra explanations to make even the trickiest concepts accessible. Building on the wonder inspired by outer space, Astrophysics for Young People in a Hurry introduces an exciting field and the principles of scientific inquiry to young readers.

#### A Physical Approach to Astronomical Observations

#### An Introduction to Modern Astrophysics

#### Interstellar and Intergalactic Medium

#### Observational Cosmology

#### Stellar Interiors

#### Foundations of AstrophysicsCambridge University Press

*Tough Test Questions? Missed Lectures? Not Enough Time? Fortunately for you, there's Schaum's Outlines. More than 40 million students have trusted Schaum's to help them succeed in the classroom and on exams. Schaum's is the key to faster learning and higher grades in every subject. Each Outline presents all the essential course information in an easy-to-follow, topic-by-topic format. You also get hundreds of examples, solved problems, and practice exercises to test your skills. This Schaum's Outline gives you Practice problems with full explanations that reinforce knowledge Coverage of the most up-to-date developments in your course field In-depth review of practices and applications Fully compatible with your classroom text, Schaum's highlights all the important facts you need to know. Use Schaum's to shorten your study time-and get your best test scores!*

#### Schaum's Outlines-Problem Solved.

*Fundamental Astronomy is a well-balanced, comprehensive introduction to classical and modern astronomy. While emphasizing both the astronomical concepts and the underlying physical principles, the text provides a sound basis for more profound studies in the astronomical sciences. This is the fifth edition of the successful undergraduate textbook and reference work. It has been extensively modernized and extended in the parts dealing with extragalactic astronomy and cosmology. You will also find augmented sections on the solar system and extrasolar planets as well as a new chapter on astrobiology. Long considered a standard text for physical science majors, Fundamental Astronomy is also an excellent reference work for dedicated amateur astronomers.*

*In recent years an enormous amount of cosmological data has come from well known projects such as the Hubble Space Telescope (HST) and the Cosmic Background Explorer (COBE). This book explains and makes sense of this vast array of new observational data in terms of its impact on current cosmological models. With new theories and a plethora of data feeding cosmology in the 1990s, Gregory Bothun sets about the task of re-assessing our cosmological models. He outlines exactly what the latest observations are, and how they should be seen as either consistent or in conflict with current cosmogenic scenarios. In this search for the reconciliation of current*

*data with competing theory, he explains how Einstein's idea of a cosmological constant has now become a viable hypothesis. This authoritative text should be valuable to all those studying cosmological observations at advanced undergraduate or beginning graduate level. Bothun draws a path through cosmology by defining a trajectory that is based on the data. This should also provide a framework for professional cosmologists and related readers in physics as it presents a solid observational foundation which either supports or conflicts with present theory. The book is illustrated including many CCD images of galaxies. Given the rapidly changing nature of the field, this book is supported by a World Wide Web site of supplementary material that is designed to readily update the material in the book.*

*Astronomy Methods is an introduction to basic practical tools, methods and phenomena that underlie quantitative astronomy. Taking a technical approach, the author covers a rich diversity of topics across all branches of astronomy, from radio to gamma-ray wavelengths. Clear, systematic presentations of the topics are accompanied by diagrams and problem sets. Written for undergraduates and graduate students, this book contains a wealth of information that is required for the practice and study of quantitative and analytical astronomy and astrophysics.*

Second Edition

Introduction to Stellar Dynamics

An Introduction to Modern Stellar Astrophysics

An Introduction to Stellar Astrophysics

Outlines and Highlights for Foundations of Astrophysics by Barbara Ryden, Isbn

An Introduction to Modern Astrophysics is a comprehensive, well-organized and engaging text covering every major area of modern astrophysics, from the solar system and stellar astronomy to galactic and extragalactic astrophysics, and cosmology.

Designed to provide students with a working knowledge of modern astrophysics, this textbook is suitable for astronomy and physics majors who have had a first-year introductory physics course with calculus. Featuring a brief summary of the main scientific discoveries that have led to our current understanding of the universe; worked examples to facilitate the understanding of the concepts presented in the book; end-of-chapter problems to practice the skills acquired; and computational exercises to numerically model astronomical systems, the second edition of An Introduction to Modern Astrophysics is the go-to textbook for learning the core astrophysics curriculum as well as the many advances in the field.

This concise textbook covers all aspects of the interstellar and intergalactic medium, for graduate students and advanced undergraduates.

Provides a physics-centered analysis of a broad range of astronomical systems that appeals to a large audience of advanced undergraduate students in physics and engineering This book gives a survey of astrophysics at the advanced undergraduate level.

It originates from a two-semester course sequence at Rutgers University that is meant to appeal not only to astrophysics students but also more broadly to physics and engineering students. The organization is driven more by physics than by astronomy; in other words, topics are first developed in physics and then applied to astronomical systems that can be investigated, rather than the other way around. The first half of the book focuses on gravity. Gravity is the dominant force in many astronomical systems, so a tremendous amount can be learned by studying gravity, motion and mass. The theme in this part of the book, as well as throughout astrophysics, is using motion to investigate mass. The goal of Chapters 2-11 is to develop a progressively richer understanding of gravity as it applies to objects ranging from planets and moons to galaxies and the universe as a whole. The second half uses other aspects of physics to address one of the big questions. While "Why are we here?" lies beyond the realm of physics, a closely related question is within our reach: "How did we get here?" The goal of Chapters 12-20 is to understand the physics behind the remarkable story of how the Universe, Earth and life were formed. This book assumes familiarity with vector calculus and introductory physics (mechanics, electromagnetism, gas physics and atomic physics); however, all of the physics topics are reviewed as they come up (and vital aspects of vector calculus are reviewed in the Appendix).

An Introduction to Modern Cosmology Third Edition is an accessible account of modern cosmological ideas. The Big Bang Cosmology is explored, looking at its observational successes in explaining the expansion of the Universe, the existence and properties of the cosmic microwave background, and the origin of light elements in the universe. Properties of the very early Universe are also covered, including the motivation for a rapid period of expansion known as cosmological inflation. The third edition brings this established undergraduate textbook up-to-date with the rapidly evolving observational situation. This fully revised edition of a bestseller takes an approach which is grounded in physics with a logical flow of chapters leading the reader from basic ideas of the expansion described by the Friedman equations to some of the more advanced ideas about the early universe. It also incorporates up-to-date results from the Planck mission, which imaged the anisotropies of the Cosmic Microwave Background radiation over the whole sky. The Advanced Topic sections present subjects with more detailed mathematical approaches to give greater depth to discussions. Student problems with hints for solving them and numerical answers are embedded in the chapters to facilitate the reader's understanding and learning. Cosmology is now part of the core in many degree programs. This current, clear and concise introductory text is relevant to a wide range of astronomy programs worldwide and is essential reading for undergraduates and Masters students, as well as anyone starting research in cosmology. The accompanying website for this text, <http://booksupport.wiley.com>, provides additional material designed to enhance your learning, as well as errata within the text.

This book is a gentle introduction for all those wishing to learn about modern views of the cosmos. Our universe originated in a great explosion – the big bang. For nearly a century cosmologists have studied the aftermath of this explosion: how the universe expanded and cooled down, and how galaxies were gradually assembled by gravity. The nature of the bang itself has come into focus only relatively recently. It is the subject of the theory of cosmic inflation, which was developed in the last few decades and has led to a radically new global view of the universe. Students and other interested readers will find here a non-technical but conceptually rigorous account of modern cosmological ideas - describing what we know, and how we know it. One of the book's central themes is the scientific quest to find answers to the ultimate cosmic questions: Is the universe finite or infinite? Has it existed forever? If not, when and how did it come into being? Will it ever end? The book is based on the undergraduate course taught by Alex Vilenkin at Tufts University. It assumes no prior knowledge of physics or mathematics beyond elementary high school math. The necessary physics background is introduced as it is required. Each chapter includes a list of questions and exercises of varying degree of difficulty.

Fundamentals of Astrophysics

The Cambridge Companion to Greek Mythology

9780321595584

Solar System Dynamics

Astrophysics in a Nutshell

*"[Tyson] tackles a great range of subjects...with great humor, humility, and—most important—humanity." —Entertainment Weekly* *Loyal readers of the monthly "Universe" essays in Natural History magazine have long recognized Neil deGrasse*

*Tyson's talent for guiding them through the mysteries of the cosmos with clarity and enthusiasm. Bringing together more than forty of Tyson's favorite essays, Death by Black Hole explores a myriad of cosmic topics, from what it would be like to be inside a black hole to the movie industry's feeble efforts to get its night skies right. One of America's best-known astrophysicists, Tyson is a natural teacher who simplifies the complexities of astrophysics while sharing his infectious fascination for our universe.*

*A contemporary and complete introduction to astrophysics for astronomy and physics majors taking a two-semester survey course.*

*Astronomy is the field of science devoted to the study of astronomical objects, such as stars, galaxies, and nebulae. Astronomers have gathered a wealth of knowledge about the universe through hundreds of years of painstaking observations. These observations are interpreted by the use of physical and chemical laws familiar to mankind. These interpr*

*This concise textbook, designed specifically for a one-semester course in astrophysics, introduces astrophysical concepts to undergraduate science and engineering students with a background in college-level, calculus-based physics. The text is organized into five parts covering: stellar properties; stellar structure and evolution; the interstellar medium and star/planet formation; the Milky Way and other galaxies; and cosmology. Structured around short easily digestible chapters, instructors have flexibility to adjust their course's emphasis as it suits them. Exposition drawn from the author's decade of teaching his course guides students toward a basic but quantitative understanding, with 'quick questions' to spur practice in basic computations, together with more challenging multi-part exercises at the end of each chapter. Advanced concepts like the quantum nature of energy and radiation are developed as needed. The text's approach and level bridge the wide gap between introductory astronomy texts for non-science majors and advanced undergraduate texts for astrophysics majors.*

*Current state of play in astrobology, including exoplanets and their atmospheres, habitable zones and the likelihood of evolution elsewhere.*

An Introduction to Active Galactic Nuclei

Astronomy Methods

Using Gravity and Stellar Physics to Explore the Cosmos

Lectures on Astrophysics

The Exoplanet Handbook

**Providing a comprehensive and up-to-date treatment of observational cosmology, this advanced undergraduate textbook enables students to use quantitative physical methods to understand the Universe. The textbook covers recent developments such as precision cosmology and the concordance cosmological model, inflation, gravitational lensing, the extragalactic far-infrared and X-ray backgrounds, downsizing and baryon wiggles. It also explores the future missions and facilities likely to dominate cosmological research in the future, including radio, X-ray, submillimeter-wave and gravitational wave astronomy. Each chapter contains full-color figures, worked examples and exercises with complete solutions. Clearly identified key facts and equations help students easily locate important information. Suggestions for further reading provide jumping-off points for students aiming to further their studies. Reflecting decades of Open University experience in undergraduate teaching, this textbook brings students to the forefront of the rapidly developing field of observational cosmology. Accompanying resources to this textbook are available at: <http://www.cambridge.org/features/astrophysics>.**

**An Introduction to Celestial Mechanics**

**Cosmology for the Curious**

**Life in the Milky Way and Beyond**

**Schaum's Outline of Astronomy**