

Introducing Pure Mathematics

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MOODY NORRIS

Further Pure Mathematics Oxford University Press, USA

This textbook provides a unified and concise exploration of undergraduate mathematics by approaching the subject through its history. Readers will discover the rich tapestry of ideas behind familiar topics from the undergraduate curriculum, such as calculus, algebra, topology, and more. Featuring historical episodes ranging from the Ancient Greeks to Fermat and Descartes, this volume offers a glimpse into the broader context in which these ideas developed, revealing unexpected connections that make this ideal for a senior capstone course. The presentation of previous versions has been refined by omitting the less mainstream topics and inserting new connecting material, allowing instructors to cover the book in a one-semester course. This condensed edition prioritizes succinctness and cohesiveness, and there is a greater emphasis on visual clarity, featuring full color images and high quality 3D models. As in previous editions, a wide array of mathematical topics are covered, from geometry to computation; however, biographical sketches have been omitted.

Mathematics and Its History: A Concise Edition is an essential resource for courses or reading programs on the history of mathematics. Knowledge of basic calculus, algebra, geometry, topology, and set theory is assumed. From reviews of previous editions: "Mathematics and Its History is a joy to read. The writing is clear, concise and inviting. The style is very different from a traditional text. I found myself picking it up to read at the expense of my usual late evening thriller or detective novel.... The author has done a wonderful job of tying together the dominant themes of undergraduate mathematics." Richard J. Wilders, MAA, on the Third Edition "The book...is presented in a lively style without unnecessary detail. It is very stimulating and will be appreciated not only by students. Much attention is paid to problems and to the development of mathematics before the end of the nineteenth century.... This book brings to the non-specialist interested in mathematics many interesting results. It can be recommended for seminars and will be enjoyed by the broad mathematical community." European Mathematical Society, on the Second Edition

Introducing Statistics Cambridge University Press

This text is designed for an introductory probability course at the university level for sophomores, juniors, and seniors in mathematics, physical and social sciences, engineering, and computer

science. It presents a thorough treatment of ideas and techniques necessary for a firm understanding of the subject. The text is also recommended for use in discrete probability courses. The material is organized so that the discrete and continuous probability discussions are presented in a separate, but parallel, manner. This organization does not emphasize an overly rigorous or formal view of probability and therefore offers some strong pedagogical value. Hence, the discrete discussions can sometimes serve to motivate the more abstract continuous probability discussions. Features: Key ideas are developed in a somewhat leisurely style, providing a variety of interesting applications to probability and showing some nonintuitive ideas. Over 600 exercises provide the opportunity for practicing skills and developing a sound understanding of ideas. Numerous historical comments deal with the development of discrete probability. The text includes many computer programs that illustrate the algorithms or the methods of computation for important problems. The book is a beautiful introduction to probability theory at the beginning level. The book contains a lot of examples and an easy development of theory without any sacrifice of rigor, keeping the abstraction to a minimal level. It is indeed a valuable addition to the study of probability theory. -- Zentralblatt MATH

A Minimal Introduction Cambridge University Press

Assuming GCSE as a starting point (National Curriculum Level 7/8), this A-Level mathematics text provides transitional material in the early chapters for students from a variety of mathematical backgrounds, and caters for a wide spread of ability. It contains the core for A-Level mathematics as outlined in all examination board syllabuses, and additional coverage is included to cater for the pure maths content of A-Level mathematics courses combining pure maths with mechanics / statistics / decision (discrete) maths, and the first half of A-Level pure mathematics.

An Infinite Descent Into Pure Mathematics Nelson Thornes

Bridging the gap between procedural mathematics that emphasizes calculations and conceptual mathematics that focuses on ideas, Mathematics: A Minimal Introduction presents an undergraduate-level introduction to pure mathematics and basic concepts of logic. The author builds logic and mathematics from scratch using essentially no background except natural language. He also carefully avoids circularities that are often encountered in related books and places special emphasis on separating the language of mathematics from metalanguage and eliminating semantics from set theory. The first part of the text focuses on pre-mathematical logic, including

syntax, semantics, and inference. The author develops these topics entirely outside the mathematical paradigm. In the second part, the discussion of mathematics starts with axiomatic set theory and ends with advanced topics, such as the geometry of cubics, real and p-adic analysis, and the quadratic reciprocity law. The final part covers mathematical logic and offers a brief introduction to model theory and incompleteness. Taking a formalist approach to the subject, this text shows students how to reconstruct mathematics from language itself. It helps them understand the mathematical discourse needed to advance in the field.

Pure mathematics 1 Courier Corporation

Accessible to all students with a sound background in high school mathematics, *A Concise Introduction to Pure Mathematics, Fourth Edition* presents some of the most fundamental and beautiful ideas in pure mathematics. It covers not only standard material but also many interesting topics not usually encountered at this level, such as the theory of solving cubic equations; Euler's formula for the numbers of corners, edges, and faces of a solid object and the five Platonic solids; the use of prime numbers to encode and decode secret information; the theory of how to compare the sizes of two infinite sets; and the rigorous theory of limits and continuous functions. New to the Fourth Edition Two new chapters that serve as an introduction to abstract algebra via the theory of groups, covering abstract reasoning as well as many examples and applications New material on inequalities, counting methods, the inclusion-exclusion principle, and Euler's phi function Numerous new exercises, with solutions to the odd-numbered ones Through careful explanations and examples, this popular textbook illustrates the power and beauty of basic mathematical concepts in number theory, discrete mathematics, analysis, and abstract algebra. Written in a rigorous yet accessible style, it continues to provide a robust bridge between high school and higher-level mathematics, enabling students to study more advanced courses in abstract algebra and analysis.

Pure Mathematics Math Dot Coffee Publishing

This teacher's resource file covers the requirements of all AS and Advanced level mathematics courses and major specifications. There is a section on chapter objectives that lists all the key areas covered in each chapter to aid lesson planning or assessment. Teaching notes provide guidance and ideas on developing and enhancing the material provided in the core book as well as a list of topics that students are likely to find difficult. A question bank of material is included for use in revision with fully worked solutions to all consolidation A questions.

Cambridge International A and AS Level Mathematics OUP Oxford

Traces the development of mathematical thinking and describes the characteristics of the "republic of numbers" in terms of humankind's fascination with, and growing knowledge of, infinity.

Mathematics and Its History Oxford University Press - Children

This companion to *Core Maths for A-level* covers all the work necessary for the mechanics component of all boards' syllabuses for A-level mathematics.

Introduction to Mathematical Analysis CRC Press

Providing complete syllabus support (9709), this stretching and practice-focused course builds the advanced skills needed for the latest Cambridge assessments and the transition to higher education. Engaging, real world examples make mathematics relevant to real life.

Further Pure Mathematics Harvard University Press

A Course of Pure Mathematics is a classic textbook in introductory mathematical analysis, written by G. H. Hardy. It is recommended for people studying calculus. For years, it remains one of the most popular books on pure mathematics. The book contains a large number of descriptive and study materials together with a number of difficult problems with regards to number theory analysis. The book is organized into the following chapters, with each chapter further divided. Real Variables Functions Of Real Variables Complex Numbers Limits Of Functions Of A Positive Integral Variable Limits Of Functions Of A Continuous Variable. Continuous And Discontinuous Functions Derivatives And Integrals Additional Theorems In The Differential And Integral Calculus The Convergence Of Infinite Series And Infinite Integrals The Logarithmic, Exponential And Circular Functions Of A Real Variable The General Theory Of The Logarithmic, Exponential And Circular Functions The book was intended to help reform mathematics teaching in the world, from the University of Cambridge and in schools preparing to study higher mathematics. It was aimed directly at "scholarship level" students - the top 10% to 20% by ability. Hardy himself did not originally find a passion for mathematics, only seeing it as a way to beat other students, which he did decisively, and gain scholarships.[1] However, his book excels in effectively explaining analytical number theory and calculus following the rigor of mathematics. Whilst his book changed the way the subject was taught at university, the content reflects the era in which the book was written. The whole book explores number theory and the author constructs real numbers theoretically. It adequately deals with single-variable calculus, sequences, number series, properties of cos, sin, log, etc. but does not refer to mathematical groups, multi-variable functions or vector calculus. Each section includes some demanding problems. Hardy combines the enthusiasm of the missionary with the rigor of the purist in his exposition of the fundamental ideas of the differential and integral calculus, of the properties of infinite series and of other topics involving the notion of limit. Hardy's presentation of mathematical analysis is as valid today as when first written: students will find that his economical and energetic style of presentation is one that modern authors rarely come close to.[2] Despite its limitations, it is considered a classic in its field. It is probably of most use to 1st year university students of pure mathematics.

Advanced mathematics 2 Bloomsbury Publishing USA

Providing complete syllabus support (9709), this stretching and practice-focused course builds the advanced skills needed for the latest Cambridge assessments and the transition to higher education. Engaging, real world examples make mathematics relevant to real life.

Coordinate Geometry and Complex Numbers Oxford University Press

NO description available

Introducing Pure Mathematics American Mathematical Soc.

This brand new series has been written for the University of Cambridge International Examinations course for AS and A Level Mathematics (9709). This title covers the requirements of P1. The authors are experienced examiners and teachers who have written extensively at this level, so have ensured all mathematical concepts are explained using language and terminology that is appropriate for students across the world. Students are provided with clear and detailed worked examples and questions from Cambridge International past papers, so they have the opportunity for plenty of essential exam practice. Each book contains a free CD-ROM which features the unique 'Personal

Tutor' and 'Test Yourself' digital resources that will help students revise and reinforce concepts away from the classroom: - With Personal Tutor each student has access to audio-visual, step-by-step support through exam-style questions - The Test Yourself interactive multiple choice questions identify weaknesses and point students in the right direction

[Introduction to Probability](#) Springer Nature

Part of Tsinghua University Texts, "Statistical Properties of Deterministic Systems" discusses the fundamental theory and computational methods of the statistical properties of deterministic discrete dynamical systems. After introducing some basic results from ergodic theory, two problems related to the dynamical system are studied: first the existence of absolute continuous invariant measures, and then their computation. They correspond to the functional analysis and numerical analysis of the Frobenius-Perron operator associated with the dynamical system. The book can be used as a text for graduate students in applied mathematics and in computational mathematics; it can also serve as a reference book for researchers in the physical sciences, life sciences, and engineering.

Dr. Jiu Ding is a professor at the Department of Mathematics of the University of Southern Mississippi; Dr. Aihui Zhou is a professor at the Academy of Mathematics and Systems Science of the Chinese Academy of Sciences.

[Understanding Pure Mathematics](#) Trans-Atlantic Publications

Pure Mathematics for Beginners Pure Mathematics for Beginners consists of a series of lessons in Logic, Set Theory, Abstract Algebra, Number Theory, Real Analysis, Topology, Complex Analysis, and Linear Algebra. The 16 lessons in this book cover basic through intermediate material from each of these 8 topics. In addition, all the proofwriting skills that are essential for advanced study in mathematics are covered and reviewed extensively. Pure Mathematics for Beginners is perfect for professors teaching an introductory college course in higher mathematics high school teachers working with advanced math students students wishing to see the type of mathematics they would be exposed to as a math major. The material in this pure math book includes: 16 lessons in 8 subject areas. A problem set after each lesson arranged by difficulty level. A complete solution guide is included as a downloadable PDF file. Pure Math Book Table Of Contents (Selected) Here's a selection from the table of contents: Introduction Lesson 1 - Logic: Statements and Truth Lesson 2 - Set Theory: Sets and Subsets Lesson 3 - Abstract Algebra: Semigroups, Monoids, and Groups Lesson 4 - Number Theory: Ring of Integers Lesson 5 - Real Analysis: The Complete Ordered Field of Reals Lesson 6 - Topology: The Topology of \mathbb{R} Lesson 7 - Complex Analysis: The field of Complex Numbers Lesson 8 - Linear Algebra: Vector Spaces Lesson 9 - Logic: Logical Arguments Lesson 10 - Set Theory: Relations and Functions Lesson 11 - Abstract Algebra: Structures and Homomorphisms

Lesson 12 - Number Theory: Primes, GCD, and LCM Lesson 13 - Real Analysis: Limits and Continuity Lesson 14 - Topology: Spaces and Homeomorphisms Lesson 15 - Complex Analysis: Complex Valued Functions Lesson 16 - Linear Algebra: Linear Transformations

[Measurement](#) Createspace Independent Publishing Platform

In just seven symbols, with profound and beautiful simplicity, Euler's Equation connects five of the most important numbers in mathematics. Robin Wilson explores each number in turn, then brings them together to consider the power of the equation as a whole.

[Core Maths for A-level](#) Nelson Thornes

Introducing Mechanics has been written to cover all the Mechanics requirements for single-subject A Level. Through the nature of its style and contents it is ideal for both A- and AS-Level Mechanics. Key Points: · Clear text and style · Includes worked examples so that students can work alone · Exercises and examination questions

A Mathematician's Apology McGraw-Hill College

Partial Differential Equations presents a balanced and comprehensive introduction to the concepts and techniques required to solve problems containing unknown functions of multiple variables. While focusing on the three most classical partial differential equations (PDEs)—the wave, heat, and Laplace equations—this detailed text also presents a broad practical perspective that merges mathematical concepts with real-world application in diverse areas including molecular structure, photon and electron interactions, radiation of electromagnetic waves, vibrations of a solid, and many more. Rigorous pedagogical tools aid in student comprehension; advanced topics are introduced frequently, with minimal technical jargon, and a wealth of exercises reinforce vital skills and invite additional self-study. Topics are presented in a logical progression, with major concepts such as wave propagation, heat and diffusion, electrostatics, and quantum mechanics placed in contexts familiar to students of various fields in science and engineering. By understanding the properties and applications of PDEs, students will be equipped to better analyze and interpret central processes of the natural world.

A Rigorous Introduction to Logic, Set Theory, Abstract Algebra, Number Theory, Real Analysis, Topology, Complex Analysis, and Linear Algebra John Wiley & Sons

This introductory undergraduate-level textbook covers the knowledge and skills required to study pure mathematics at an advanced level. Emphasis is placed on communicating mathematical ideas precisely and effectively. A wide range of topic areas are covered.

Mechanics for A-level Routledge

Lærebog i matematik for ungdomsuddannelser (GCE A-level)