

Elements Of Discrete Mathematics 2nd Edition Tata Mcgraw Hill

Originally published in 2006, reissued as part of Pearson's modern classic series.

Discrete Mathematical Structures provides comprehensive, reasonably rigorous and simple explanation of the concepts with the help of numerous applications from computer science and engineering. Every chapter is equipped with a good number of solved examples that elucidate the definitions and theorems discussed. Chapter-end exercises are graded, with the easier ones in the beginning and then the complex ones, to help students for easy solving.

Discrete Structures introduces readers to the mathematical structures and methods that form the foundation of computer science and features multiple techniques that readers will turn to regularly throughout their careers in computer and information sciences. Over the course of five modules, students learn specific skills including binary and modular arithmetic, set notation, methods of counting, evaluating sums, and solving recurrences. They study the basics of probability, proof by induction, growth of functions, and analysis techniques. The book also discusses general problem-solving techniques that are widely applicable to real problems. Each module includes motivation applications, technique, theory, and further opportunities for application. Informed by extensive experience teaching in computer science programs, Discrete Structures has been developed specifically for first-year students in those programs. The material is also suitable for courses in computer engineering, as well as those for students who are transferring from other disciplines and just beginning their computer science or engineering education. Harriet Fell holds a Ph.D. in mathematics from the Massachusetts Institute of Technology, and is a professor emerita of computer science at Northeastern University. Dr. Fell is a double patent holder who has received grants from the National Institute of Health, the National Science Foundation, and the U.S. Department of Education. Javed A. Aslam holds a Ph.D. in computer science from the Massachusetts Institute of Technology and is a professor of computer science at Northeastern University and the associate dean of faculty in the College of Computer and Information Science. Dr. Aslam's research interests include information retrieval, machine learning, and the design and analysis of algorithms.

According to the great mathematician Paul Erdős, God maintains perfect mathematical proofs in The Book. This book presents the authors candidates for such "perfect proofs," those which contain brilliant ideas, clever connections, and wonderful observations, bringing new insight and surprising perspectives to problems from number theory, geometry, analysis, combinatorics, and graph theory. As a result, this book will be fun reading for anyone with an interest in mathematics.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book.

Stein/Drysdale/Bogart's Discrete Mathematics for Computer Scientists is ideal for computer science students taking the discrete math course. Written specifically for computer science students, this unique textbook directly addresses their needs by providing a foundation in discrete math while using motivating, relevant CS applications. This text takes an active-learning approach where activities are presented as exercises and the material is then fleshed out through explanations and extensions of the exercises.

Applied Discrete Structures, Part II - Algebraic Structures, is an introduction to groups, monoids, vector spaces, lattices, boolean algebras, rings and fields. It corresponds with the content of Discrete Structures II at UMass Lowell, which is a required course for students in Computer Science. It presumes background contained in Part I - Fundamentals.

Applied Discrete Structures has been approved by the American Institute of Mathematics as part of their Open Textbook Initiative. For more information on open textbooks, visit <http://www.aimath.org/textbooks/>. This version was created using Mathbook XML (<https://mathbook.pugetsound.edu/>) Al Doerr is Emeritus Professor of Mathematical Sciences at UMass Lowell. His interests include abstract algebra and discrete mathematics. Ken Levasseur is a Professor of Mathematical Sciences at UMass Lowell. His interests include discrete mathematics and abstract algebra, and their implementation using computer algebra systems.

Focused on helping readers understand and construct proofs – and, generally, expanding their mathematical maturity – this best-seller is an accessible introduction to discrete mathematics. Takes an algorithmic approach that emphasizes problem-solving techniques. Expands discussion on how to construct proofs and treatment of problem solving. Increases number of examples and exercises throughout.

Wallis's book on discrete mathematics is a resource for an introductory course in a subject fundamental to both mathematics and computer science, a course that is expected not only to cover certain specific topics but also to introduce students to important modes of thought specific to each discipline . . . Lower-division undergraduates through graduate students. —Choice reviews (Review of the First Edition) Very appropriately entitled as a 'beginner's guide', this textbook presents itself as the first exposure to discrete mathematics and rigorous proof for the mathematics or computer science student. —Zentralblatt Math (Review of the First Edition) This second edition of A Beginner's Guide to Discrete Mathematics presents a detailed guide to discrete mathematics and its relationship to other mathematical subjects including set theory, probability, cryptography, graph theory, and number theory. This textbook has a distinctly applied orientation and explores a variety of applications. Key Features of the second edition: * Includes a new chapter on the theory of voting as well as numerous new examples and exercises throughout the book * Introduces functions, vectors, matrices, number systems, scientific notations, and the representation of numbers in computers * Provides examples which then lead into easy practice problems throughout the text and full exercise at the end of each chapter * Full solutions for practice problems are provided at the end of the book This text is intended for undergraduates in mathematics and computer science, however, featured special topics and applications may also interest graduate students.

Discrete mathematics is a compulsory subject for undergraduate computer scientists. This new edition includes new chapters on statements and proof, logical framework, natural numbers and the integers and updated exercises from the previous edition.

Elements of Discrete Mathematics A Computer Oriented Approach Elements Of Discrete Mathematics 2/E Discrete Mathematics An Open Introduction

Master the fundamentals of discrete mathematics with DISCRETE MATHEMATICS FOR COMPUTER SCIENCE with Student Solutions Manual CD-ROM! An increasing number of computer scientists from diverse areas are using discrete mathematical structures to explain concepts and problems and this mathematics text shows you how to express precise ideas in clear mathematical language. Through a wealth of exercises and examples, you will learn how mastering discrete mathematics will help you develop important reasoning skills that will continue to be useful throughout your career.

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.

Winner at the 46th Annual New England Book Show (2003) in the "College Covers & Jackets" category This introduction to discrete mathematics prepares future computer scientists, engineers, and mathematicians for success by providing extensive and concentrated coverage of logic, functions, algorithmic analysis, and algebraic structures.

Discrete Mathematics, Second Edition illustrates the relationships between key concepts through its thematic organization and provides a seamless transition between subjects. Distinct for the depth with which it covers logic, this text emphasizes problem solving and the application of theory as it carefully guides the reader from basic to more complex topics. Discrete Mathematics is an ideal resource for discovering the fundamentals of discrete math. Discrete Mathematics, Second Edition is designed for an introductory course in discrete mathematics for the prospective computer scientist, applied mathematician, or engineer who wants to learn how the ideas apply to computer sciences. The choice of topics-and the breadth of coverage-reflects the desire to provide students with the foundations needed to successfully complete courses at the upper division level in undergraduate computer science courses. This book differs in several ways from current books about discrete mathematics. It presents an elementary and unified introduction to a collection of topics that has not been available in a single source. A major feature of the book is the unification of the material so that it does not fragment into a collection of seemingly unrelated ideas.

Aimed at undergraduate mathematics and computer science students, this book is an excellent introduction to a lot of problems of discrete mathematics. It discusses a number of selected results and methods, mostly from areas of combinatorics and graph theory, and it uses proofs and problem solving to help students understand the solutions to problems. Numerous examples, figures, and exercises are spread throughout the book.

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This Text Can Be Used By The Students Of Mathematics Or Computer Science As An Introduction To The Fundamentals Of Discrete Mathematics. The Book Is Designed In Accordance With The Syllabi Of Be, B. Tech, Bca, Mca, And M.Sc. (Computer Science) Prescribed In Most Of The Universities. This Book Offers The Following Topics: Mathematical Logic, Sets, Relations, Recurrence Relations, Functions, Combinations, Boolean Algebra, Logic Gates, Graph Theory, Algebraic Structures, And Finite State Machines. Each Chapter Is Supplemented With A Number Of Worked Examples As Well As A Number Of Problems To Be Solved By The Students. This Would Help In A Better Understanding Of The Subject.

A practical guide simplifying discrete math for curious minds and demonstrating its application in solving problems related to software development, computer algorithms, and data science Key Features Apply the math of countable objects to practical problems in computer science Explore modern Python libraries such as scikit-learn, NumPy, and SciPy for performing mathematics Learn complex statistical and mathematical concepts with the help of hands-on examples and expert guidance Book Description Discrete mathematics deals with studying countable, distinct elements, and its principles are widely used in building algorithms for computer science and data science. The knowledge of discrete math concepts will help you understand the algorithms, binary, and general mathematics that sit at the core of data-driven tasks. Practical Discrete Mathematics is a comprehensive introduction for those who are new to the mathematics of countable objects. This book will help you get up to speed with using discrete math principles to take your computer science skills to a more advanced level. As you learn the language of discrete mathematics, you'll also cover methods crucial to studying and describing computer science and machine learning objects and algorithms. The chapters that follow will guide you through how memory and CPUs work. In addition to this, you'll understand how to analyze data for useful patterns, before finally exploring how to apply math concepts in network routing, web searching, and data science. By the end of this book, you'll have a deeper understanding of discrete math and its applications in computer science, and be ready to work on real-world algorithm development and machine learning. What you will learn Understand the terminology and methods in discrete math and their usage in algorithms and data problems Use Boolean algebra in formal logic and elementary control structures Implement combinatorics to measure computational complexity and manage memory allocation Use random variables, calculate descriptive statistics, and find average-case computational complexity Solve graph problems involved in routing, pathfinding, and graph searches, such as depth-first search Perform ML tasks such as data visualization, regression, and dimensionality reduction Who this book is for This book is for computer scientists looking to expand their knowledge of discrete math, the core topic of their field.

University students looking to get hands-on with computer science, mathematics, statistics, engineering, or related disciplines will also find this book useful. Basic Python programming skills and knowledge of elementary real-number algebra are required to get started with this book.

A Trusted Guide to Discrete Mathematics with Proof? Now in a Newly Revised Edition Discrete mathematics has become increasingly popular in recent years due to its growing applications in the field of

computer science. Discrete Mathematics with Proof, Second Edition continues to facilitate an up-to-date understanding of this important topic, exposing readers to a wide range of modern and technological applications. The book begins with an introductory chapter that provides an accessible explanation of discrete mathematics. Subsequent chapters explore additional related topics including counting, finite probability theory, recursion, formal models in computer science, graph theory, trees, the concepts of functions, and relations. Additional features of the Second Edition include: An intense focus on the formal settings of proofs and their techniques, such as constructive proofs, proof by contradiction, and combinatorial proofs New sections on applications of elementary number theory, multidimensional induction, counting tulips, and the binomial distribution Important examples from the field of computer science presented as applications including the Halting problem, Shannon's mathematical model of information, regular expressions, XML, and Normal Forms in relational databases Numerous examples that are not often found in books on discrete mathematics including the deferred acceptance algorithm, the Boyer-Moore algorithm for pattern matching, Sierpinski curves, adaptive quadrature, the Josephus problem, and the five-color theorem Extensive appendices that outline supplemental material on analyzing claims and writing mathematics, along with solutions to selected chapter exercises Combinatorics receives a full chapter treatment that extends beyond the combinations and permutations material by delving into non-standard topics such as Latin squares, finite projective planes, balanced incomplete block designs, coding theory, partitions, occupancy problems, Stirling numbers, Ramsey numbers, and systems of distinct representatives. A related Web site features animations and visualizations of combinatorial proofs that assist readers with comprehension. In addition, approximately 500 examples and over 2,800 exercises are presented throughout the book to motivate ideas and illustrate the proofs and conclusions of theorems. Assuming only a basic background in calculus, Discrete Mathematics with Proof, Second Edition is an excellent book for mathematics and computer science courses at the undergraduate level. It is also a valuable resource for professionals in various technical fields who would like an introduction to discrete mathematics.

Known for its accessible, precise approach, Epp's DISCRETE MATHEMATICS WITH APPLICATIONS, 5th Edition, introduces discrete mathematics with clarity and precision. Coverage emphasizes the major themes of discrete mathematics as well as the reasoning that underlies mathematical thought. Students learn to think abstractly as they study the ideas of logic and proof. While learning about logic circuits and computer addition, algorithm analysis, recursive thinking, computability, automata, cryptography and combinatorics, students discover that ideas of discrete mathematics underlie and are essential to today's science and technology. The author's emphasis on reasoning provides a foundation for computer science and upper-level mathematics courses. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This approachable text studies discrete objects and the relationships that bind them. It helps students understand and apply the power of discrete math to digital computer systems and other modern applications. It provides excellent preparation for courses in linear algebra, number theory, and modern/abstract algebra and for computer science courses in data structures, algorithms, programming languages, compilers, databases, and computation. * Covers all recommended topics in a self-contained, comprehensive, and understandable format for students and new professionals * Emphasizes problem-solving techniques, pattern recognition, conjecturing, induction, applications of varying nature, proof techniques, algorithm development and correctness, and numeric computations * Weaves numerous applications into the text * Helps students learn by doing with a wealth of examples and exercises: - 560 examples worked out in detail - More than 3,700 exercises - More than 150 computer assignments - More than 600 writing projects * Includes chapter summaries of important vocabulary, formulas, and properties, plus the chapter review exercises * Features interesting anecdotes and biographies of 60 mathematicians and computer scientists * Instructor's Manual available for adopters * Student Solutions Manual available separately for purchase (ISBN: 0124211828)

This updated text, now in its Third Edition, continues to provide the basic concepts of discrete mathematics and its applications at an appropriate level of rigour. The text teaches mathematical logic, discusses how to work with discrete structures, analyzes combinatorial approach to problem-solving and develops an ability to create and understand mathematical models and algorithms essentials for writing computer programs. Every concept introduced in the text is first explained from the point of view of mathematics, followed by its relation to Computer Science. In addition, it offers excellent coverage of graph theory, mathematical reasoning, foundational material on set theory, relations and their computer representation, supported by a number of worked-out examples and exercises to reinforce the students' skill.

Primarily intended for undergraduate students of Computer Science and Engineering, and Information Technology, this text will also be useful for undergraduate and postgraduate students of Computer Applications. New to this Edition Incorporates many new sections and subsections such as recurrence relations with constant coefficients, linear recurrence relations with and without constant coefficients, rules for counting and shorting, Peano axioms, graph connecting, graph scanning algorithm, lexicographic shorting, chains, antichains and order-isomorphism, complemented lattices, isomorphic order sets, cyclic groups, automorphism groups, Abelian groups, group homomorphism, subgroups, permutation groups, cosets, and quotient subgroups. Includes many new worked-out examples, definitions, theorems, exercises, and GATE level MCQs with answers.

Discrete Structure, Logic, and Computability introduces the beginning computer science student to some of the fundamental ideas and techniques used by computer scientists today, focusing on discrete structures, logic, and computability. The emphasis is on the computational aspects, so that the reader can see how the concepts are actually used. Because of logic's fundamental importance to computer science, the topic is examined extensively in three phases that cover informal logic, the technique of inductive proof; and formal logic and its applications to computer science.

Note: This is the 3rd edition. If you need the 2nd edition for a course you are taking, it can be found as a "other format" on amazon, or by searching its isbn: 1534970746 This gentle introduction to discrete mathematics is written for first and second year math majors, especially those who intend to teach. The text began as a set of lecture notes for the discrete mathematics course at the University of Northern Colorado. This course serves both as an introduction to topics in discrete math and as the "introduction to proof" course for math majors. The course is usually taught with a large amount of student inquiry, and this text is written to help facilitate this. Four main topics are covered: counting, sequences, logic, and graph theory. Along the way proofs are introduced, including proofs by contradiction, proofs by induction, and combinatorial proofs. The book contains over 470 exercises, including 275 with solutions and over 100 with hints. There are also Investigate! activities throughout the text to support active, inquiry based learning. While there are many fine discrete math textbooks available, this text has the following advantages: It is written to be used in an inquiry rich course. It is written to be used in a course for future math teachers. It is open source, with low cost print editions and free electronic editions. This third edition brings improved exposition, a new section on trees, and a bunch of new and improved exercises. For a complete list of changes, and to view the free electronic version of the text, visit the book's website at discrete.openmathbooks.org This book covers elementary discrete mathematics for computer science and engineering. It emphasizes mathematical definitions and proofs as well as applicable methods.

Topics include formal logic notation, proof methods; induction, well-ordering; sets, relations; elementary graph theory; integer congruences; asymptotic notation and growth of functions; permutations and combinations, counting principles; discrete probability. Further selected topics may also be covered, such as recursive definition and structural induction; state machines and invariants; recurrences; generating functions.

Several areas of mathematics find application throughout computer science, and all students of computer science need a practical working understanding of them. These core subjects are centred on logic, sets, recursion, induction, relations and functions. The material is often called discrete mathematics, to distinguish it from the traditional topics of continuous mathematics such as integration and differential equations. The central theme of this book is the connection between computing and discrete mathematics. This connection is useful in both directions: • Mathematics is used in many branches of computer science, in applications including program specification, datastructures, design and analysis of algorithms, database systems, hardware design, reasoning about the correctness of implementations, and much more; • Computers can help to make the mathematics easier to learn and use, by making mathematical terms executable, making abstract concepts more concrete, and through the use of software tools such as proof checkers. These connections are emphasised throughout the book. Software tools (see Appendix A) enable the computer to serve as a calculator, but instead of just doing arithmetic and trigonometric functions, it will be used to calculate with sets, relations, functions, predicates and inferences. There are also special software tools, for example a proof checker for logical proofs using natural deduction.

Some of the hardest computational problems have been successfully attacked through the use of probabilistic algorithms, which have an element of randomness to them. Concepts from the field of probability are also increasingly useful in analyzing the performance of algorithms, broadening our understanding beyond that provided by the worst-case or average-case analyses. This book surveys both of these emerging areas on the interface of the mathematical sciences and computer science. It is designed to attract new researchers to this area and provide them with enough background to begin explorations of their own.

This Book Is Meant To Be More Than Just A Text In Discrete Mathematics. It Is A Forerunner Of Another Book Applied Discrete Structures By The Same Author. The Ultimate Goal Of The Two Books Are To Make A Strong Case For The Inclusion Of Discrete Mathematics In The Undergraduate Curricula Of Mathematics By Creating A Sequence Of Courses In Discrete Mathematics Parallel To The Traditional Sequence Of Calculus-Based Courses. The Present Book Covers The Foundations Of Discrete Mathematics In Seven Chapters. It Lays A Heavy Emphasis On Motivation And Attempts Clarity Without Sacrificing Rigour. A List Of Typical Problems Is Given In The First Chapter. These Problems Are Used Throughout The Book To Motivate Various Concepts. A Review Of Logic Is Included To Gear The Reader Into A Proper Frame Of Mind. The Basic Counting Techniques Are Covered In Chapters 2 And 7. Those In Chapter 2 Are Elementary. But They Are Intentionally Covered In A Formal Manner So As To Acquaint The Reader With The Traditional Definition-Theorem-Proof Pattern Of Mathematics. Chapter 3 Introduces Abstraction And Shows How The Focal Point Of Today's Mathematics Is Not Numbers But Sets Carrying Suitable Structures. Chapter 4 Deals With Boolean Algebras And Their Applications. Chapters 5 And 6 Deal With More Traditional Topics In Algebra, Viz., Groups, Rings, Fields, Vector Spaces And Matrices. The Presentation Is Elementary And Presupposes No Mathematical Maturity On The Part Of The Reader. Instead, Comments Are Inserted Liberally To Increase His Maturity. Each Chapter Has Four Sections. Each Section Is Followed By Exercises (Of Various Degrees Of Difficulty) And By Notes And Guide To Literature. Answers To The Exercises Are Provided At The End Of The Book.

Explains the fundamental concepts in mathematics. It can be used by the students in computer science as an introduction to the underlying ideas of mathematics for computer science. It explains topics like mathematical logic, predicates, relations, functions, combinatorics, algebraic structures and graph theory. It would be useful for the students of B.Tech, BCA, & MCA. Key Features: * Comprehensive discussion on logic, function, algebraic systems, recurrence relations and graph theory * Wide variety of exercises at all levels * Several worked out examples

Aimed at "the mathematically traumatized," this text offers nontechnical coverage of graph theory, with exercises. Discusses planar graphs, Euler's formula, Platonic graphs, coloring, the genus of a graph, Euler walks, Hamilton walks, more. 1976 edition.

Written for the one-term course, the Third Edition of Essentials of Discrete Mathematics is designed to serve computer science majors as well as students from a wide range of disciplines. The material is organized around five types of thinking: logical, relational, recursive, quantitative, and analytical. This presentation results in a coherent outline that steadily builds upon mathematical sophistication. Graphs are introduced early and referred to throughout the text, providing a richer context for examples and applications. Students will encounter algorithms near the end of the text, after they have acquired the skills and experience needed to analyze them. The final chapter contains in-depth case studies from a variety of fields, including biology, sociology, linguistics, economics, and music.

Rosen's Discrete Mathematics and its Applications presents a precise, relevant, comprehensive approach to mathematical concepts. This world-renowned best-selling text was written to accommodate the needs across a variety of majors and departments, including mathematics, computer science, and engineering. As the market leader, the book is highly flexible, comprehensive and a proven pedagogical teaching tool for instructors.

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