

Discrete Mathematics Kolman Busby Ross

Discrete Mathematics for Computer Scientists
 Discrete Structures
 A Logical Approach to Discrete Math
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 A Comprehensive Treatment of q-Calculus
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 The Art of Educated Guessing and Opportunistic Problem Solving
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 Fundamental Approach To Discrete Mathematics
 Mathematical Structures for Computer Science

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This text has been designed as a complete introduction to discrete mathematics, primarily for computer science majors in either a one or two semester course. The topics addressed are of genuine use in computer science, and are presented in a logically coherent fashion. The material has been organized and interrelated to minimize the mass of definitions and the abstraction of some of the theory. For example, relations and directed graphs are treated as two aspects of the same mathematical idea. Whenever possible each new idea uses previously encountered material, and then developed in such a way that it simplifies the more complex ideas that follow.

Discrete Mathematics for Computer Scientists Addison-Wesley Longman
 Judith Gersting's *Mathematical Structures for Computer Science* has long been acclaimed for its clear presentation of essential concepts and its exceptional range of applications relevant to computer science majors. Now with this new edition, it is the first discrete mathematics textbook revised to meet the proposed new ACM/IEEE standards for the course.

Discrete Structures Course Technology Ptr

To date, the theoretical development of q-calculus has rested on a non-uniform basis. Generally, the bulky Gasper-Rahman notation was used, but the published works on q-calculus looked different depending on where and by whom they were written. This confusion of tongues not only complicated the theoretical development but also contributed to q-calculus remaining a neglected mathematical field. This book overcomes these problems by introducing a new and interesting notation for q-calculus based on logarithms. For instance, q-hypergeometric functions are now visually clear and easy to trace back to their hypergeometric parents. With this new notation it is also easy to see the connection between q-hypergeometric functions and the q-gamma function, something that until now has been overlooked. The book covers many topics on q-calculus, including special functions, combinatorics, and q-difference equations. Apart from a thorough review of the historical development of q-calculus, this book also presents the domains of modern physics for which q-calculus is applicable, such as particle physics and supersymmetry, to name just a few.

A Logical Approach to Discrete Math Springer Science & Business Media

For one/two-term, freshman/sophomore-level courses in Discrete Mathematics. More than any

other book in the field, this text ties together discrete topics with a theme. Written at an appropriate level of rigor with a strong pedagogical focus it limits depth of coverage and areas covered to topics of genuine use in computer science. An emphasis on both basic theory and applications provides students with a firm foundation for more advanced courses.

[Discrete Mathematical Structures](#) Prentice Hall

Bond and Keane explicate the elements of logical, mathematical argument to elucidate the meaning and importance of mathematical rigor. With definitions of concepts at their disposal, students learn the rules of logical inference, read and understand proofs of theorems, and write their own proofs all while becoming familiar with the grammar of mathematics and its style. In addition, they will develop an appreciation of the different methods of proof (contradiction, induction), the value of a proof, and the beauty of an elegant argument. The authors emphasize that mathematics is an ongoing, vibrant discipline its long, fascinating history continually intersects with territory still uncharted and questions still in need of answers. The authors extensive background in teaching mathematics shines through in this balanced, explicit, and engaging text, designed as a primer for higher-level mathematics courses. They elegantly demonstrate process and application and recognize the byproducts of both the achievements and the missteps of past

thinkers. Chapters 1-5 introduce the fundamentals of abstract mathematics and chapters 6-8 apply the ideas and techniques, placing the earlier material in a real context. Readers interest is continually piqued by the use of clear explanations, practical examples, discussion and discovery exercises, and historical comments.

Discrete Mathematics Math Classics

Teaches students the mathematical foundations of computer science, including logic, Boolean algebra, basic graph theory, finite state machines, grammars and algorithms, and helps them understand mathematical reasoning for reading, comprehension and construction of mathematical arguments.

[Discrete Structures, Logic, and Computability](#) John Wiley & Sons

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.

Discrete Mathematical Structures, Books a la Carte Edition Springer Science & Business Media

Susanna Epp's DISCRETE MATHEMATICS: AN INTRODUCTION TO MATHEMATICAL REASONING, provides the same clear introduction to discrete mathematics and mathematical reasoning as her highly acclaimed DISCRETE MATHEMATICS WITH APPLICATIONS, but in a compact form that focuses on core topics and omits certain applications usually taught in other courses. The book is appropriate for use in a discrete mathematics course that emphasizes essential topics or in a mathematics major or minor course that serves as a transition to abstract mathematical thinking. The ideas of discrete mathematics underlie and are essential to the science and technology of the computer age. This book offers a synergistic union of the major themes of discrete mathematics together with the reasoning that underlies mathematical thought. Renowned for her lucid, accessible prose, Epp explains complex, abstract concepts with clarity and precision, helping students develop the ability to think abstractly as they study each topic. In doing so, the book provides students with a strong foundation both for computer science and for other 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.

Discrete Mathematical Structures Cengage Learning

The book is intended for students who want to learn how to prove theorems and be better prepared for the rigors required in more advanced mathematics. One of the key components in this textbook is the development of a methodology to lay bare the structure underpinning the construction of a proof, much as diagramming a sentence lays bare its grammatical structure. Diagramming a proof is a way of presenting the relationships between the various parts of a proof. A proof diagram provides a tool for showing students how to write correct mathematical proofs.

Mathematics Springer Science & Business Media

Whatever your hydraulic applications, Practical Hydraulic Systems: Operation & Troubleshooting For Engineers & Technicians will help you to increase your knowledge of the fundamentals, improve your maintenance programs and become an excellent troubleshooter of problems in this area. Cutaways of all major components are included in the book to visually demonstrate the components' construction and operation. Developing an understanding of how it works leads to an understanding of how and why it fails. Multimedia views of the equipment are shown, to give as realistic a view of hydraulic systems as possible. The book is highly practical, comprehensive and interactive. It discusses Hydraulic Systems construction, design applications, operations, maintenance, and management issues and provides you with the most up-to-date information and Best Practice in dealing with the subject. * A focus on maintenance and troubleshooting makes this book essential reading for practising engineers. * Written to cover the requirements of mechanical / industrial and civil engineering. * Cutaway diagrams demonstrate the construction and operation of key equipment.

Infinity Publishing

Provides computer science students with a foundation in discrete mathematics using relevant computer science applications.

[Discrete Mathematical Structures](#) Pearson Education India

Salient Features * Mathematical Logic, Fundamental Concepts, Proofs And Mathematical Induction

(Chapter 1) * Set Theory, Fundamental Concepts, Theorems, Proofs, Venn Diagrams, Product Of Sets, Application Of Set Theory And Fundamental Products (Chapter 2) * An Introduction To Binary Relations And Concepts, Graphs, Arrow Diagrams, Relation Matrix, Composition Of Relations, Types Of Relation, Partial Order Relations, Total Order Relation, Closure Of Relations, Poset, Equivalence Classes And Partitions. (Chapter 3) * An Introduction To Functions And Basic Concepts, Graphs, Composition Of Functions, Floor And Ceiling Function, Characteristic Function, Remainder Function, Signum Function And Introduction To Hash Function. (Chapter 4) * The Algebraic Structure Includes Group Theory And Ring Theory. Group Theory Includes Group, Subgroups, Cyclic Group, Cosets, Homomorphism, Introduction To Codes And Group Codes And Error Correction For Block Code. The Ring Theory Includes General Definition, Fundamental Concepts, Integral Domain, Division Ring, Subring, Homomorphism, An Isomorphism And Pigeonhole Principle (Chapters 5, 6 And 7) * A Treatment Of Boolean Algebras That Emphasizes The Relation Of Boolean Algebras To Combinatorial Circuits. (Chapter 8) * An Introduction To Lattices And Basic Concepts (Chapter 9) * A Brief Introduction To Graph Theory Is Discussed. Elements Of Graph Theory Are Indispensable In Almost All Computer Science Areas. Examples Are Given Of Its Use In Such Areas As Minimum Spanning Tree, Shortest Path Problems (Dijkstra's Algorithm And Floyd-Warshall Algorithm) And Traveling Salesman Problem. The Computer Representation And Manipulation Of Graphs Are Also Discussed So That Certain Important Algorithms Can Be Included(Chapters 10 And 11) * A Strong Emphasis Is Given On Understanding The Theorems And Its Applications * Numbers Of Illustrations Are Used Throughout The Book For Explaining The Concepts And Its Applications. * Figures And Tables Are Used To Illustrate Concepts, To Elucidate Proofs And To Motivate The Material. The Captions Of These Figures Provide Additional Explanation. Besides This, A Number Of Exercises Are Given For Practice

A Handbook of Mathematical Discourse Elsevier

Discrete Mathematics and Combinatorics provides a concise and practical introduction to the core components of discrete mathematics, featuring a balanced mix of basic theories and applications. The book covers both fundamental concepts such as sets and logic, as well as advanced topics such as graph theory and Turing machines. The example-driven approach will help readers in understanding and applying the concepts. Other pedagogical tools - illustrations, practice questions, and suggested reading - facilitate learning and mastering the subject."--Cover
An Introduction to Abstract Mathematics Pearson Education India

Combining a careful selection of topics with coverage of their genuine applications in computer science, this book, more than any other in this field, is clearly and concisely written, presenting the basic ideas of discrete mathematical structures in a manner that is understandable. Limiting its scope and depth of topics to those that readers can actually utilize, this book covers first the fundamentals, then follows with logic, counting, relations and digraphs, functions, order relations and structures, trees, graph theory, semigroups and groups, languages and finite-state machines, and groups and coding. With its comprehensive appendices and index, this book can be an excellent reference work for mathematicians and those in the field of computer science.

Theory and Applications Jones & Bartlett Learning

Learn to identify the implementation of Discrete Structure and Theory of Automata in a myriad of applications used in day to day life Key Features a- Learn how to write an argument using logical notation and decide if the argument is valid or not valid. a- Learn how to use the concept of different data structures (stacks, queues, sorting concept, etc.) in the computer science field. a- Learn how to use Automata Machines like FSM, Pushdown automata, Turing machine, etc. in various applications related to computer science through suitable practical illustration. a- Learn how to implement the finite state machine using JFLAP (Java Formal Languages and Automata Package). Description This book's purpose is to provide a modern and comprehensive introduction to the subject of Discrete Structures and Automata Theory. Discrete structures, also called Discrete Mathematics, are an exciting and active subject, particularly due to its extreme relevance to both Mathematics and Computer Science and Algorithms. This subject forms a common foundation for rigorous Mathematical, Logical Reasoning and Proofs, as well as a formal introduction to abstract objects that are essential tools in an assortment of applications and effective computer implementations. Computing skills are now an integral part of almost all the Scientific fields, and students are very enthusiastic about being able to harness the full computing power of these tools. Further, this book also deep dives into the Automata Theory with various examples that illustrate the basic concepts and is substantiated with multiple diagrams. The book's vital feature is that it contains the practical implementation of the Automata Machine example through the JFLAP Tool.

Courses on Discrete Structures and Automata theory are offered at most universities and colleges. What will you learn a- Understand the basic concepts of Sets and operations in Sets. a- Demonstrate different traversal techniques for Trees and Graphs. a- Deep dive into the concept of Mathematical Induction, Sets, Relations, Functions, Recursion, Graphs, Trees, Boolean Algebra, and Proof techniques. a- Understand the concept of Automata Machines in day to day life like the Elevator, Turnstile, Genetic Algorithms, Traffic lights, etc. a- Use the JFLAP tool to solve the various exercise problems related to automata theory. Who this book is for This book is a must-read to everyone interested in improving their concepts regarding Discrete Structure and Automata Theory. Table of Contents 1. Set Theory 2. Relations and Functions 3. Graph Theory 4. Trees 5. Algebraic Structure 6. Recursion and Recurrence Relations 7. Sorting 8. Queues 9. Introduction 10. Finite Automata Theory 11. Theory of Machines 12. Regular Language 13. Grammar 14. Pushdown Automata 15. Cellular Automata 16. Turning Machine 17. Problems Solving Using JFLAP Tool 18. Revision Questions About the Authors Dr. UMESH SEHGAL completed his Ph.D., M.Phil. Computer Science and MCA. He held academic positions at the GNA University as an A.P in FCS Department. He has achieved the Best Educationist Award in 2017. He has achieved the Indira Gandhi Education Excellence Award in 2017. He has achieved the Best Researcher Award in 2018-19. He has published several articles in leading International and National Computer science journals and has been an invited speaker at Wireless networks based lectures and conferences in the many universities and Institutes in India, Malaysia, China, and UAE. SUKHPREET KAUR GILL received the M.Tech. degree in Computer Science and Engineering from Guru Nanak Dev Engineering College, Ludhiana. She is currently working as Assistant Professor at GNA University Phagwara. She has achieved the Bright Educator Award 2019. She has published several articles in leading International and National Computer science journals.

[Discrete Mathematics with Graph Theory \(Classic Version\)](#) MIT Press

An antidote to mathematical rigor mortis, teaching how to guess answers without needing a proof or an exact calculation. In problem solving, as in street fighting, rules are for fools: do whatever works—don't just stand there! Yet we often fear an unjustified leap even though it may land us on a correct result. Traditional mathematics teaching is largely about solving exactly stated problems exactly, yet life often hands us partly defined problems needing only moderately accurate solutions. This engaging book is an antidote to the rigor mortis brought on by too much mathematical rigor, teaching us how to guess answers without needing a proof or an exact calculation. In Street-Fighting Mathematics, Sanjoy Mahajan builds, sharpens, and demonstrates tools for educated guessing and down-and-dirty, opportunistic problem solving across diverse fields of knowledge—from mathematics to management. Mahajan describes six tools: dimensional analysis, easy cases, lumping, picture proofs, successive approximation, and reasoning by analogy. Illustrating each tool with numerous examples, he carefully separates the tool—the general principle—from the particular application so that the reader can most easily grasp the tool itself to use on problems of particular interest. Street-Fighting Mathematics grew out of a short course taught by the author at MIT for students ranging from first-year undergraduates to graduate students ready for careers in physics, mathematics, management, electrical engineering, computer science, and biology. They benefited from an approach that avoided rigor and taught them how to use mathematics to solve real problems. Street-Fighting Mathematics will appear in print and online under a Creative Commons Noncommercial Share Alike license.

Discrete Mathematics Macmillan Higher Education

Discrete Mathematical Structures (Classic Version) Math Classics

[Discrete Mathematical Structures](#) Elsevier

This book has two primary objectives: It teaches students fundamental concepts in discrete mathematics (from counting to basic cryptography to graph theory), and it teaches students proof-writing skills. With a wealth of learning aids and a clear presentation, the book teaches students not only how to write proofs, but how to think clearly and present cases logically beyond this course. Overall, this book is an introduction to mathematics. In particular, it is an introduction to discrete mathematics. All of the material is directly applicable to computer science and engineering, but it is presented from a mathematician's perspective. While algorithms and analysis appear throughout, the emphasis is on mathematics. Students will learn that discrete mathematics is very useful, especially those whose interests lie in computer science and engineering, as well as those who plan to study probability, statistics, operations research, and other areas of applied mathematics.

Applied Discrete Structures for Computer Science Laxmi Publications

This book has been written according to the latest syllabi for B. Tech. & M.C.A. courses of Punjab Technical University and other technical universities of India. The previous years' university questions papers have been solved systematically and logically in each chapter. It is intended to

help students better understand the concepts and ideas of discrete structures.

Discrete Mathematics with Applications Waveland Press

Here, the authors strive to change the way logic and discrete math are taught in computer science

and mathematics: while many books treat logic simply as another topic of study, this one is unique in its willingness to go one step further. The book treats logic as a basic tool which may be applied in essentially every other area.

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