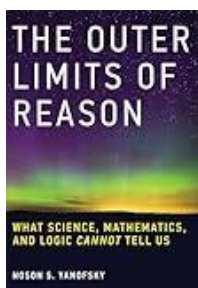


# Science Collection



## The Outer Limits of Reason: What Science, Mathematics, and Logic Cannot Tell Us

**Author:** Noson S. Yanofsky

**Publisher:** MIT Press

**Overview:** Noson S. Yanofsky's *The Outer Limits of Reason* is a profound cartography of the unknowable, documenting the inherent boundaries of science, mathematics, and logic. By investigating paradoxes, uncomputable problems, and the quirks of quantum mechanics, Yanofsky reveals that the limitations of our reason define its very structure. [Read more.](#)

**Acc. No:** 102486

**Call No:** 001.01 YAN-O



## Theoretical Computer Science for the Working Category Theorist

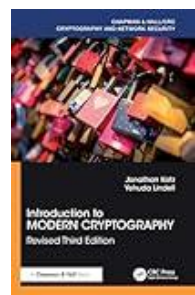
**Author:** Noson S. Yanofsky

**Publisher:** Cambridge University Press

**Overview:** This concise treatise leverages the structural power of category theory to unify the disparate theorems of theoretical computer science. By treating computation as a system of functions and processes, it provides a high-level mathematical map of the Halting problem,  $P=NP$ , and Gödel's Incompleteness. [Read more.](#)

**Acc. No:** 102394

**Call No:** 004.0151 YAN-T



## Introduction to Modern Cryptography, Revised Third Edition

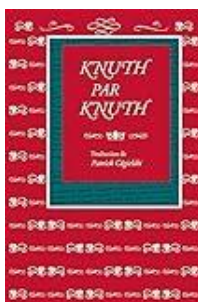
**Author:** Jonathan Katz and Yehuda Lindell

**Publisher:** CRC Press

**Overview:** The Revised Third Edition of this gold-standard textbook cements cryptography as a rigorous mathematical science rather than a collection of ad-hoc tricks. By integrating modern standards like SHA-3 and ChaCha20 alongside a new post-quantum transition chapter, Katz and Lindell provide the definitive bridge between theoretical security proofs and real-world implementation. [Read more.](#)

**Acc. No:** 102305

**Call No:** 005.8 KAT-I



## Knuth par Knuth: Conversations Avec Dikran Karagueuzian

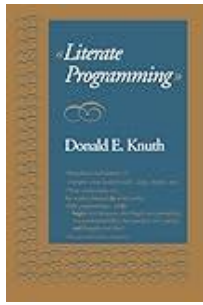
**Author:** Donald E. Knuth

**Publisher:** Center for the Study of Language and Information

**Overview:** Serving as a definitive oral autobiography, this collection of interviews traces Donald Knuth's journey from his formative years to the creation of  $\text{\TeX}$  and *The Art of Computer Programming*. Through candid dialogue with Dikran Karagueuzian, Knuth reveals the intellectual evolution of a compiler specialist who became the architect of algorithmic analysis.

**Acc. No:** 102398

**Call No:** 005.1 KNU-K



## Literate programming

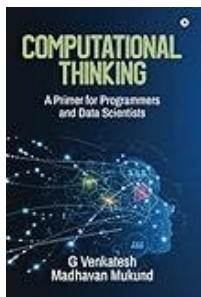
**Author:** Donald E. Knuth

**Publisher:** Center for the Study of Language and Information

**Overview:** Donald Knuth's seminal anthology introduces a paradigm shift where code is treated as literature, written primarily for human comprehension rather than machine execution. By intertwining logic with narrative, Literate Programming provides the tools to create robust, maintainable systems that serve as both efficient software and instructive essays. [Read more.](#)

**Acc. No:** 102396

**Call No:** 005.11 KNU-L



## Computational Thinking: A Primer for Programmers and Data Scientists

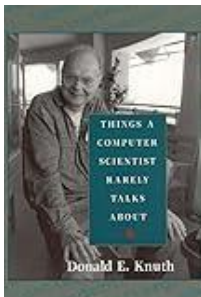
**Author:** G Venkatesh, Madhavan

**Publisher:** Notion Press

**Overview:** G. Venkatesh and Madhavan provide a foundational guide to "Computational Thinking," bridging the gap between everyday problem-solving and formal data science. By mastering iteration, abstraction, and data structures like graphs and recursion, readers learn to deconstruct complex real-world challenges into programmable patterns.

**Acc. No:** 102330

**Call No:** 006.3 VEN-C



## Things a computer scientist Rarely Talks About

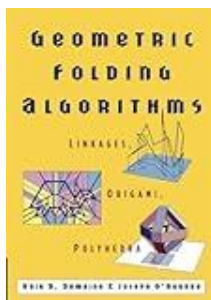
**Author:** Donald E. Knuth

**Publisher:** Center for the Study of Language and Information

**Overview:** In this series of MIT lectures, legendary computer scientist Donald Knuth explores the unexpected intersections between digital logic, randomization, and spiritual faith. By applying computational lenses to ancient theological questions, Knuth reveals how the aesthetics of code and the 3:16 project transformed his understanding of both science and the divine. [Read more.](#)

**Acc. No:** 102397

**Call No:** 261.55 KNU-T



## Geometric Folding Algorithms: Linkages, Origami, Polyhedra

**Author:** Erik D. Demaine and Joseph O'Rourke

**Publisher:** Cambridge University Press

**Overview:** This definitive treatise bridges computational geometry and physical engineering, exploring the algorithmic laws that govern how linkages, paper, and polyhedra fold. From the One-Cut Theorem to protein folding and robotics, it provides a rigorous mathematical framework for transforming flat surfaces into complex, functional three-dimensional structures.

**Acc. No:** 102393

**Call No:** 516.156 DEM-G



## Mathematical Models

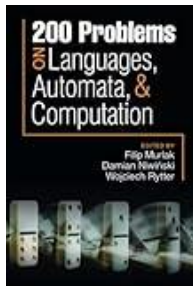
**Author:** H. Martyn Cundy and A. P. Rollett

**Publisher:** Tarquin Publications

**Overview:** A foundational manual for physical mathematics, Cundy and Rollett provide the blueprints for transforming abstract geometry into tangible models. From the intricate nets of Archimedean solids to mechanical linkages and curve stitching, this classic work bridges the gap between theoretical proof and hands-on construction.

**Acc. No:** 102400

**Call No:** [510.78 CUN-M](#)



## 200 Problems on Languages, Automata, and Computation

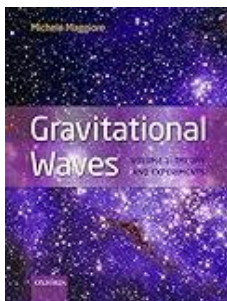
**Editor:** Filip Murlak, Damian Niwiński and Wojciech Rytter

**Publisher:** Cambridge University Press

**Overview:** This workbook transforms the abstract theory of finite automata and Turing machines into a series of 200 rigorous, solved exercises. By bridging the gap between formal grammar and practical computation, it serves as an essential drill-manual for students mastering the logical foundations of computer science. [Read more.](#)

**Acc. No:** 102395

**Call No:** [511.3 PRO-P](#)



## Gravitational Waves: Astrophysics and Cosmology, Vol- 1 and 2

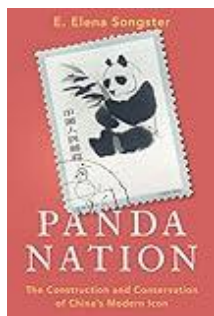
**Author:** Michele Maggiore

**Publisher:** Oxford University Press

**Overview:** The two-volume book Gravitational Waves provides a comprehensive and detailed account of the physics of gravitational waves. While Volume 1 is devoted to the theory and experiments, Volume 2 discusses what can be learned from gravitational waves in astrophysics and in cosmology, by systematizing a large body of theoretical developments that have taken place over the last decades. [Read more.](#)

**Acc. No:** 102379, 102380

**Call No:** [521.1 MAG-G](#)



## Panda Nation: The Construction and Conservation of China's Modern Icon

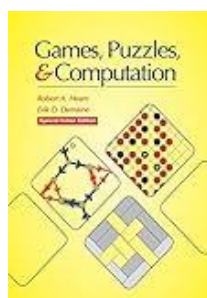
**Author:** E. Elena Songster

**Publisher:** Oxford University Press

**Overview:** E. Elena Songster traces the sudden mid-twentieth-century rise of the giant panda from an obscure mountain dweller to a ubiquitous global icon. The book reveals how the People's Republic of China utilized government-directed science and nature protection to forge a national treasure that mirrored its own ascent in global status. [Read more.](#)

**Acc. No:** 102345

**Call No:** [599.7890951 SON-P](#)



## Games, Puzzles, and Computation

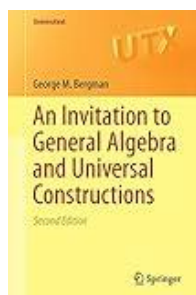
**Author:** Robert A Hearn

**Publisher:** A K Peters

**Overview:** Hearn and Demaine establish a rigorous mathematical link between the fun of puzzles and the hardness of computation, proving that games are not just pastimes but powerful alternative models of logic. By surveying the computational complexity of everything from Sudoku to sliding-block puzzles, they offer a definitive reference for how simple rulesets can simulate universal computers.

**Acc. No:** 102307

**Call No:** [510 HEA-G](#)



## An Invitation to General Algebra and Universal Constructions

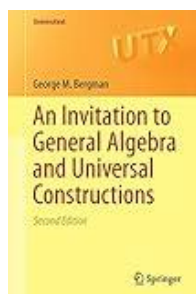
**Author:** George M. Bergman

**Publisher:** Springer

**Overview:** George M. Bergman's An Invitation to General Algebra provides a masterful bridge between concrete algebraic structures and the abstract language of category theory. By deconstructing familiar constructions into universal properties and adjunctions, it transforms algebra from a collection of isolated rules into a unified study of mathematical types and their relationships.

**Acc. No:** 102308

**Call No:** [512 BER-I](#)



## Proofs: A Long-Form Mathematics Textbook

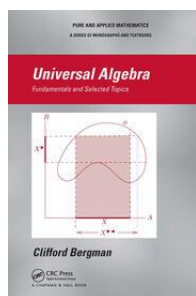
**Author:** George M. Bergman

**Publisher:** Springer

**Overview:** George M. Bergman's An Invitation to General Algebra provides a masterful bridge between concrete algebraic structures and the abstract language of category theory. By deconstructing familiar constructions into universal properties and adjunctions, it transforms algebra from a collection of isolated rules into a unified study of mathematical types and their relationships.

**Acc. No:** 102308

**Call No:** [512 BER-I](#)



## Universal Algebra Fundamentals and Selected Topics

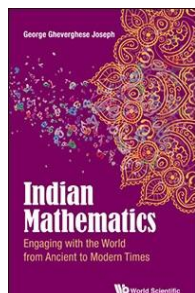
**Author:** Clifford Bergman

**Publisher:** CRC Press

**Overview:** Clifford Bergman's Universal Algebra is a comprehensive research-level guide that unifies the study of mathematical structures through the lens of subalgebras, congruences, and lattices. By bridging classical isomorphism theorems with advanced Tame Congruence Theory, it provides the essential toolbox for characterizing varieties and understanding the deep logic governing all algebraic systems.

**Acc. No:** 102309

**Call No:** [512 BER-U](#)



### **Indian Mathematics: Engaging with the World from Ancient to Modern Times**

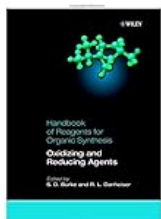
**Author:** George Gheverghese Joseph

**Publisher:** World Scientific

**Overview:** Indian Mathematics offers a definitive global history of the subcontinent's mathematical genius, tracing its evolution from ancient Vedic rituals to modern theorems. By examining the cross-cultural transmission of ideas, Joseph repositions Indian discoveries as central catalysts for the worldwide advancement of economics, technology, and philosophy.

**Acc. No:** 102310

**Call No:** [510.954 JOS-I](#)



### **Oxidizing and Reducing Agents: handbook of reagents for organic synthesis**

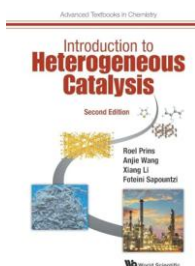
**Editor:** Steven D. Burke and Rick L. Danheiser

**Publisher:** John Wiley and Sons

**Overview:** This specialized handbook provides a curated extraction of 500 essential oxidizing and reducing agents from the Encyclopaedia of Reagents for Organic Synthesis (EROS).

**Acc. No:** 102302

**Call No:** [547.2 OXI-O](#)



### **Introduction To Heterogeneous Catalysis**

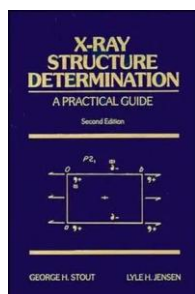
**Author:** Prins, Roel

**Publisher:** World Scientific

**Overview:** It provides a multidisciplinary foundation for graduate students, merging chemical, materials, and engineering principles with industrial applications. By incorporating new chapters on hydrotreating and electrocatalysis, the authors bridge the gap between traditional petroleum refining and the modern transition to renewable energy storage and CO2 reduction.

**Acc. No:** 102303

**Call No:** [541.395 PRI-I](#)



### **X-Ray Structure Determination: A Practical Guide, 2nd Ed.**

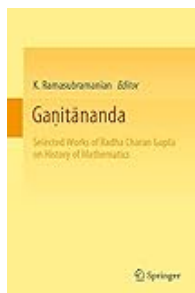
**Author:** George H. Stout and Lyle H. Jensen

**Publisher:** John Wiley and Sons

**Overview:** It provides a multidisciplinary foundation for graduate students, merging chemical, materials, and engineering principles with industrial applications. By incorporating new chapters on hydrotreating and electrocatalysis, the authors bridge the gap between traditional petroleum refining and the modern transition to renewable energy storage and CO2 reduction.

**Acc. No:** 102303

**Call No:** [541.395 PRI-I](#)



## **Ganitānanda: Selected Works of Radha Charan Gupta on History of Mathematics**

**Editor:** K. Ramasubramanian

**Publisher:** Springer Nature

**Overview:** Professor Radha Charan Gupta's Ganitānanda is a definitive compendium of 58 scholarly articles that restore the global legacy of Indian mathematics and astronomy. From the intricacies of Vedic geometry to the cross-civilizational dissemination of algebra, this collection serves as both a technical treasury and a profound tribute to a "doyen" of the field.

**Acc. No:** 102503

**Call No:** [516.35 GAN-G](#)



## **Handbook of Formal Languages**

**Editor:** Grzegorz Rozenberg and Arto Salomaa

**Publisher:** Springer-Verlag Berlin Heidelberg

**Overview:** It establishes the backbone of theoretical computer science by defining the core mechanics of words, languages, and grammars. Through a collaborative effort by global authorities, it maps the evolution of the field from its 1970s origins to a modern, highly specialized discipline essential for understanding computation.

**Acc. No:** 102504

**Call No:** [511.3 HAN-H](#)



## **An Introduction to Computational Origami**

**Author:** Tetsuo Ida

**Publisher:** Springer Nature

**Overview:** It defines origami as a rigorous system of symbolic and graphical geometry suitable for computer manipulation. By introducing the Eos software, the book bridges the gap between ancient paper-folding traditions and modern algorithmic verification, offering a unique intersection of scientific intuition and mathematical proof.

**Acc. No:** 102509

**Call No:** [516.00285 IDA-I](#)



## **Universal Algebra for Computer Scientists**

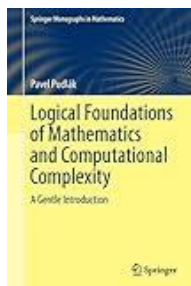
**Author:** Wolfgang Wechler

**Publisher:** Springer-Verlag

**Overview:** Wolfgang Wechler provides a rigorous model-theoretic framework for understanding the abstract structures that underpin computation. By integrating term rewriting, algebraic characterization, and fixpoint methods, the book offers a unified language for graduate students and researchers to navigate the mathematical foundations of computer science.

**Acc. No:** 102510

**Call No:** [512.5 WEC-U](#)



## Logical Foundations of Mathematics and Computational Complexity: A Gentle Introduction

**Author:** Pavel Pudlak

**Publisher:** Springer International Publishing

**Overview:** It argues that complexity theory is as vital to the foundations of math as traditional provability. By bridging set theory, proof complexity, and the limits of human calculation, this gentle monograph offers a conceptual roadmap for graduate students, physicists, and philosophers.

**Acc. No:** 102511

**Call No:** [511.3 PUD-L](#)



## The Biggest Ideas in the Universe 1: Space, Time and Motion

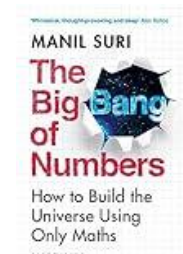
**Author:** Sean Carroll

**Publisher:** Oneworld Publications

**Overview:** Sean Carroll's Space, Time and Motion is a revolutionary bridge between pop-science and the rigorous world of professional physics. As the first volume in a landmark trilogy, it demystifies the mathematical heart of the universe, guiding readers through the foundational equations of classical mechanics from Euclid to Einstein's Relativity.

**Acc. No:** 102522

**Call No:** [530.11 CAR-B](#)



## The Big Bang of Numbers: How to Build the Universe Using Only Maths

**Author:** Manil Suri

**Publisher:** Bloomsbury Publishing

**Overview:** It is a creative thought experiment that reconstructs the entire physical universe using only mathematical foundations. Starting from "absolute nothingness," Suri weaves together number theory, geometry, and algebra to prove that the cosmos is not just described by math but is fundamentally birthed from it.

**Acc. No:** 102523

**Call No:** [510.1 SUR-B](#)

THE NOTHING THAT IS  
A Natural History of Zero



## The Nothing that Is: A Natural History of Zero

**Author:** Robert Kaplan

**Publisher:** Oxford University Press

**Overview:** Robert Kaplan's The Nothing That Is is a biography of zero, tracing its evolution from a Sumerian placeholder to a sophisticated Indian mathematical entity and, finally, the Saracen magic of the West. Kaplan argues that this hollow circle is the ultimate paradox: a symbol for nothing that serves as the recursive engine for all modern computation and scientific thought.

**Acc. No:** 102519

**Call No:** [511.2 KAP-N](#)



## Advances in Minimum Description Length: Theory and Applications

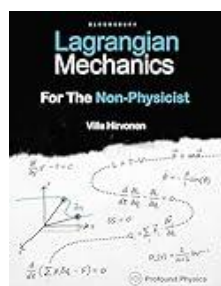
**Editor:** Peter D. Grünwald, Jay Injae Myung and Mark A. Pitt

**Publisher:** MIT Press

**Overview:** A comprehensive sourcebook for the Minimum Description Length (MDL) principle, this volume bridges the gap between Kolmogorov complexity and modern inductive inference. By framing the "best explanation" as the one that achieves maximum data compression, it provides a unified theoretical framework for researchers in machine learning, bioinformatics, and cognitive science.

**Acc. No:** 102521

**Call No:** 519.5 ADV-A



## Lagrangian Mechanics for the Non-Physicist

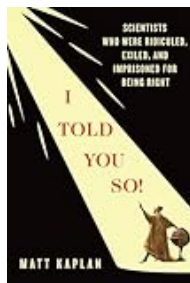
**Author:** Ville Hirvonen

**Publisher:** Bloomsbury

**Overview:** Ville Hirvonen's Lagrangian Mechanics for The Non-Physicist serves as the essential "steering wheel" for anyone aspiring to understand modern physics. By focusing on the why rather than just the how, Hirvonen demystifies the Principle of Least Action, providing the necessary mathematical foundation for General Relativity and Quantum Field Theory.

**Acc. No:** 102561

**Call No:** 530.1 HIR-L



## I Told You So!: Scientists Who Were Ridiculed, Exiled, and Imprisoned for Being Right

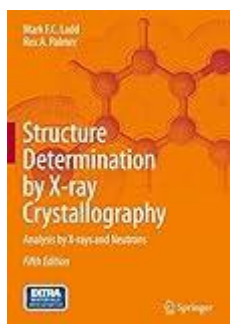
**Author:** Matt Kaplan

**Publisher:** St. Martin's Press

**Overview:** The book is a searing indictment of the scientific establishment's tendency to suppress revolutionary ideas that challenge the status quo. Through the stories of pioneers from Semmelweis to Katalin Karikó, Kaplan argues that the greatest breakthroughs often occur despite the research community, not because of it.

**Acc. No:** 102485

**Call No:** 509.0920 KAP-I



## Structure Determination by X-ray Crystallography: Analysis by X-rays and Neutrons

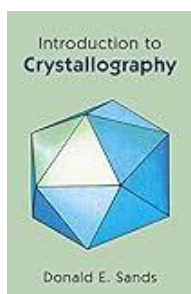
**Author:** Mark Ladd and Rex Palmer

**Publisher:** Springer

**Overview:** A revised edition of a definitive text, Structure Determination by X-ray Crystallography provides a comprehensive guide to the universal tools of molecular analysis. By integrating the complementary strengths of neutron diffraction with traditional X-ray techniques, the book offers an unparalleled look at atomic positioning, supported by an interactive suite of computational programs.

**Acc. No:** 102432

**Call No:** 548.83 LAD-S



## Introduction to Crystallography

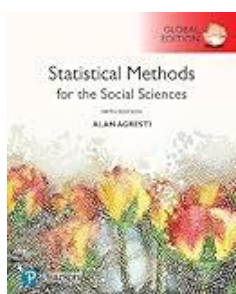
**Author:** Donald E. Sands

**Publisher:** Dover

**Overview:** Donald E. Sands' Introduction to Crystallography is a delightful entry-point for nonspecialists, distilling the complex logic of crystal structures into an accessible, low-math primer. From the basic vocabulary of lattices to the mechanics of X-ray diffraction, it remains a foundational reference for chemists and mineralogists seeking to decode crystallographic literature.

**Acc. No:** 102433

**Call No:** [548 SAN-I](#)



## Statistical Methods for the Social Sciences

**Author:** Alan Agresti

**Publisher:** Pearson

**Overview:** Alan Agresti's Statistical Methods for the Social Sciences is the gold-standard primer for turning social observations into quantifiable insights without requiring a heavy mathematical pedigree. By prioritizing conceptual understanding and real-world data applets over rote formulas, the 5th edition bridges the gap between social theory and empirical proof.

**Acc. No:** 102490

**Call No:** [519.5 AGR-S](#)



## Everything Is Predictable: how Bayesian statistics explain our world

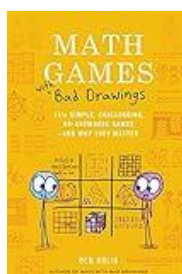
**Author:** Tom Chivers

**Publisher:** Weidenfeld and Nicolson

**Overview:** It is a witty, perspective-shifting journey into the 18th-century theorem that defines the modern world. By blending the biography of Thomas Bayes with cutting-edge science, Chivers demonstrates how prior beliefs and new evidence form the mathematical bedrock of everything from medical diagnoses to the future of AI.

**Acc. No:** 102443

**Call No:** [519.542 CHI-E](#)



## Math Games with Bad Drawings

**Author:** Ben Orlin

**Publisher:** Black Dog & Leventhal

**Overview:** Ben Orlin's Math Games with Bad Drawings is a brilliant interactive compendium of over 70 accessible yet deep mathematical games. Using only paper, pens, and coins, Orlin demonstrates how simple rules can trigger complex strategic thinking, making high-level mathematical concepts delightful and easy to master.

**Acc. No:** 102331

**Call No:** [793.74 ORL-M](#)



## **Martin Gardner's Science Magic: Tricks and Puzzles**

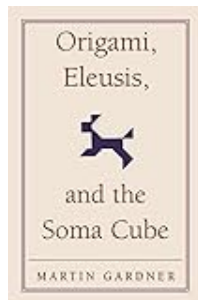
**Author:** Martin Gardner

**Publisher:** Dover Publications

**Overview:** In Science Magic, the legendary Martin Gardner transforms common household objects into tools for scientific wizardry, offering over 80 tricks that demonstrate core physical principles. By merging sleight-of-hand with gravity, inertia, and electromagnetism, Gardner provides an interactive, safe, and humorous gateway to scientific literacy for all ages.

**Acc. No:** 102306

**Call No:** [793.8 GAR-S](#)



## **Origami, Eleusis, and the Soma Cube: Martin Gardner's Mathematical Diversions**

**Author:** Martin Gardner

**Publisher:** Cambridge University Press

**Overview:** Martin Gardner's classic anthology transforms recreational puzzles from the Soma Cube to the Ham Sandwich Theorem into profound lessons in topology and logic. Now updated with modern proofs and game variations, this volume remains the definitive bridge between playful curiosity and serious mathematical inquiry.

**Acc. No:** 102392

**Call No:** [793.74 GAR-O](#)