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Pearson is the world's learning company, with presence across 70 countries worldwide. Our unique insights and world-class expertise comes from a long history of working closely with renowned teachers, authors and thought leaders, as a result of which, we have emerged as the preferred choice for millions of teachers and learners across the world.

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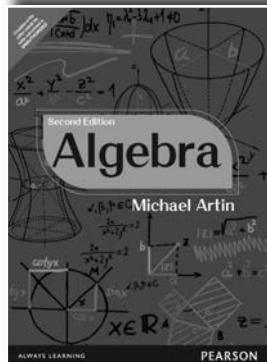
Your feedback plays a critical role in the evolution of our products and you can contact us – reachus@pearson.com. We look forward to it.

MATHEMATICS



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ISBN: 9789332549838

Algebra, 2/e

 Michael Artin

 560 | © 2015
ABOUT THE BOOK

Algebra, Second Edition, by Michael Artin, is ideal for the honors undergraduate or introductory graduate course. The second edition of this classic text incorporates twenty years of feedback and the author's own teaching experience. The text discusses concrete topics of algebra in greater detail than most texts, preparing students for the more abstract concepts; linear algebra is tightly integrated throughout.

FEATURES

- High emphasis on concrete topics, such as symmetry, linear groups, quadratic number fields, and lattices, prepares students to learn more abstract concepts. The focus on these special topics also allows some abstractions to be treated more concisely, devoting more space to the areas students are the most interested in.
- The chapter organization emphasizes the connections between algebra and geometry at the start, with the beginning chapters containing the content most important for students in other fields. To counter the fact that arithmetic receives less initial emphasis, the later chapters have a strong arithmetic slant.
- Treatment beyond the basics sets this book apart from others. Students with a reasonably mature mathematical background will benefit from the relatively informal treatments the author gives to the more advanced topics.
- Content notes in the preface include teaching tips from the author's own classroom experience.
- Challenging exercises are indicated with an asterisk, allowing instructors to easily create the right assignments for their class.

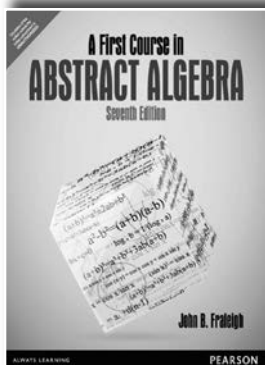
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|-------------------------------------|------------------------------|
| 1. Matrices | 9. Linear Groups |
| 2. Groups | 10. Group Representations |
| 3. Vector Spaces | 11. Rings |
| 4. Linear Operators | 12. Factoring |
| 5. Applications of Linear Operators | 13. Quadratic Number Fields |
| 6. Symmetry | 14. Linear Algebra in a Ring |
| 7. More Group Theory | 15. Fields |
| 8. Bilinear Forms | 16. Galois Theory |


ABOUT THE AUTHOR(S)

Michael Artin (born 1934) is an American mathematician and a professor at MIT, known for his contributions to algebraic geometry. He is the son of Emil Artin. He was brought up in Indiana. In the early 1960s he spent time at the IHES in France, contributing to the SGA4 volumes of the Séminaire de géométrie algébrique, on topos theory and étale cohomology. He also worked on the question of characterising the representable functors in the category of schemes; this led to the Artin approximation theorem, in local algebra. This work also gave rise to the ideas of an algebraic space and algebraic stack, and has proved very influential in moduli theory. Additionally, he has made contributions to the deformation theory of algebraic varieties. In 2002, he won the American Mathematical Society's annual Steele Prize for Lifetime Achievement. He is currently working on non-commutative rings, especially geometric aspects.

A First Course in Abstract Algebra, 7/e



ISBN: 9789332519039

 John B. Fraleigh

 460 | © 2014

ABOUT THE BOOK

Considered a classic by many, *A First Course in Abstract Algebra* is an in-depth introduction to abstract algebra. Focused on groups, rings and fields, this text gives students a firm foundation for more specialized work by emphasizing an understanding of the nature of algebraic structures.

FEATURES

- This classical approach to abstract algebra focuses on applications.
- The text is geared toward high-level courses at schools with strong

mathematics programs.

- Accessible pedagogy includes historical notes written by Victor Katz, an authority on the history of math.
- By opening with a study of group theory, this text provides students with an easy transition to axiomatic mathematics

CONTENTS

Sets and Relations

1. Groups and Subgroups
2. Permutations, Cosets, and Direct Products

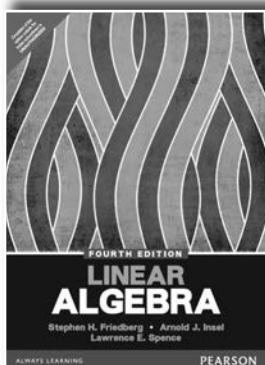
3. Homomorphisms and Factor Groups

4. Rings and Fields
5. Ideals and Factor Rings
6. Extension Fields

7. Advanced Group Theory

8. Factorization
 9. Automorphisms and Galois Theory
- Appendix: Matrix Algebra

Linear Algebra, 4/e



ISBN: 9789332549647

 Stephen H. Friedberg | Arnold J. Insel | Lawrence E. Spence

 601 | © 2015

ABOUT THE BOOK

This top-selling, theorem-proof text presents a careful treatment of the principle topics of linear algebra, and illustrates the power of the subject through a variety of applications. It emphasizes the symbiotic relationship between linear transformations and matrices, but states theorems in the more general infinite-dimensional case where appropriate.

FEATURES

- NEW - Added section on the singular value decomposition which discusses the pseudoinverse of a matrix or a linear transformation between finite-dimensional inner product spaces.
- NEW - Revised proofs, added examples and exercises which improves the clarity of the text and enhances students' understanding of it.
- The friendliest treatment of rigor in linear algebra—Usually used for a 2nd course, but can be used for smart, fast students in first course.
- Numerous accessible exercises—Enriches and extends the text material.
- Real-world applications throughout.

CONTENTS

1. Vector Spaces.
 2. Linear Transformations and Matrices.
 3. Elementary Matrix Operations and Systems of Linear Equations.
 4. Determinants.
 5. Diagonalization.
 6. Inner Product Spaces.
- Appendices.
Answers to Selected Exercises.

ABOUT THE AUTHOR(S)

Stephen H. Friedberg, Illinois State University

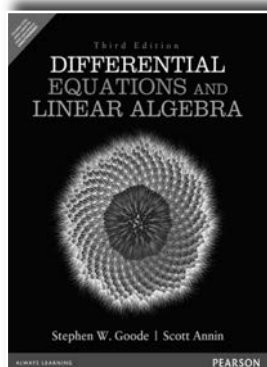
Arnold J. Insel, Illinois State University

Lawrence E. Spence, Illinois State University

Differential Equations and Linear Algebra, 3/e

 **Stephen W. Goode**

 **800** | © **2015**



ISBN: 9789332571631

ABOUT THE BOOK

“For combined differential equations and linear algebra courses teaching students who have successfully completed three semesters of calculus. This complete introduction to both differential equations and linear algebra presents a carefully balanced and sound integration of the two topics. It promotes in-depth understanding rather than rote memorization, enabling students to fully comprehend abstract concepts and leave the course with a solid foundation in linear algebra. Flexible in format, it explains concepts clearly and logically with an abundance of examples and illustrations, without sacrificing level or rigor. A vast array of problems supports

the material, with varying levels from which students/instructors can choose.”

CONTENTS

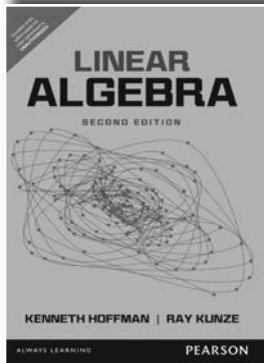
1. First-Order Differential Equations
 2. Matrices and Systems of Linear Equations
 3. Determinants
 4. Vector Spaces
 5. Linear Transformation
 6. Linear Differential Equations of Order n
 7. Systems of Differential Equations
 8. The Laplace Transform and Some Elementary Applications
 9. Series Solutions to Linear Differential Equations
- Appendices**
- A. Review of Complex Numbers
 - B. Review of Partial Fractions
 - C. Review of Integration Techniques
 - D. Linearly Independent Solutions to $x^2y'' + xp(x)y' + q(x)y = 0$
 - E. Answers to Odd-Numbered Exercises”

ABOUT THE AUTHOR(S)

Stephen W. Goode, California State University, Fullerton

Scott A. Annin, California State University, Fullerton

Linear Algebra, 2/e



ISBN: 9789332550070

 Kenneth M Hoffman | Ray Kunze

 592 | © 2015

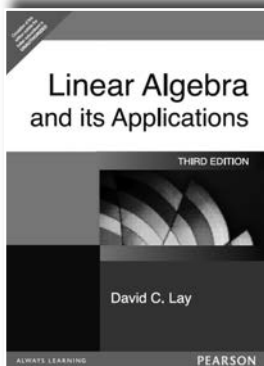
ABOUT THE BOOK

This introduction to linear algebra features intuitive introductions and examples to motivate important ideas and to illustrate the use of results of theorems.

CONTENTS

1. Linear Equations
2. Vector Spaces
3. Linear Transformations
4. Polynomials
5. Determinants
6. Elementary canonical Forms
7. Rational and Jordan Forms
8. Inner Product Spaces
9. Operators on Inner Product Spaces
10. Bilinear Forms

Linear Algebra and Its Applications, 3/e



ISBN: 9788177583355

 David C. Lay

 580 | © 2002

ABOUT THE BOOK

Linear algebra is relatively easy for students during the early stages of the course, when the material is presented in a familiar, concrete setting. But when abstract concepts are introduced, students often hit a brick wall. Instructors seem to agree that certain concepts (such as linear independence, spanning, subspace, vector space, and linear transformations), are not easily understood, and require time to assimilate. Since they are fundamental to the study of linear algebra, students understanding of these concepts is vital to their mastery of the subject. Lay introduces these concepts early in a familiar, concrete \mathbb{R}^n setting, develops them gradually,

and returns to them again and again throughout the text. Finally, when discussed in the abstract, these concepts are more accessible.

FEATURES

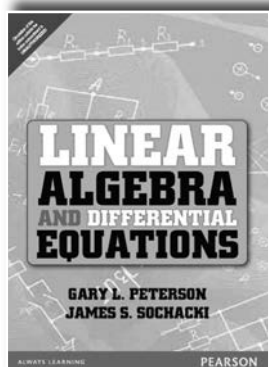
- Fundamental ideas of linear algebra are introduced within the first seven lectures, in the concrete setting of \mathbb{R}^n , and then gradually examined from different points of view. Later generalizations of these concepts appear as natural extensions of familiar ideas.
- Focus on visualization of concepts throughout the book.
- Icons in the margins to flag topics for which expanded or enhanced material is available on the Web.
- A modern view of matrix multiplication is presented. Definitions and proofs focus on the columns of a matrix rather than on the matrix entries.
- Numerical Notes give a realistic flavor to the text. Students are reminded frequently of issues that arise in the real-life use of linear algebra.
- Each major concept in the course is given a geometric interpretation because many students learn better when they can visualize an idea.

CONTENTS

1. Linear Equations in Linear Algebra.
2. Matrix Algebra.
3. Determinants.
4. Vector Spaces.
5. Eigenvalues and Eigenvectors.
6. Orthogonality and Least-Squares.
7. Symmetric Matrices and Quadratic Forms.

ABOUT THE AUTHOR(S)

David C. Lay has been an educator and research mathematician since 1966, mostly at the University of Maryland, College Park. He has also served as a visiting professor at the University of Amsterdam, the Free University in Amsterdam, and the University of Kaiserslautern, Germany. He has over 30 research articles published in functional analysis and linear algebra.



ISBN: 9789332552463

Linear Algebra and Differential Equations, 1/e



Gary L. Peterson | James S. Sochacki



480 | © 2015

ABOUT THE BOOK

Linear Algebra and Differential Equations has been written for a one-semester combined linear algebra and differential equations course, yet it contains enough material for a two-term sequence in linear algebra and differential equations. By introducing matrices, determinants, and vector spaces early in the course, the authors are able to fully develop the connections between linear algebra and differential equations. The book is flexible enough to be easily adapted to fit most syllabi, including separate courses that cover linear algebra in the first followed by differential equations in the second. Technology is fully integrated where appropriate, and the text offers fresh and relevant applications to motivate student interest.

FEATURES

- Offers a solid foundation in both linear algebra and differential equations, with an emphasis on finding connections between the two subjects.
- Contains applications to many areas, including engineering, business, and life sciences.
- Maple exercises incorporated throughout; support is also offered to users of Mathematica and Matlab in the technology resource manual.

CONTENTS

1. Matrices and Determinants.
2. Vector Spaces.
3. First Order Ordinary Differential Equations.
4. Linear Differential Equations.
5. Linear Transformations and Eigenvalues and Eigenvectors.
6. Systems of Differential Equations.
7. The Laplace Transform.
8. Power Series Solutions to Linear Differential Equations.
9. Inner Product Spaces.

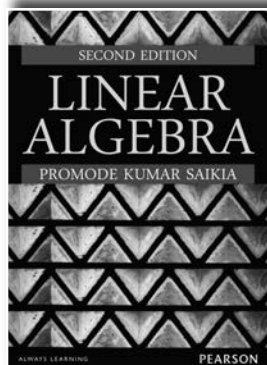
Answers to Odd-Numbered Exercises.

Index of Maple Commands.

ABOUT THE AUTHOR(S)

Gary L. Peterson, James Madison University
James S. Sochacki, James Madison University

Linear Algebra, 2/e



ISBN: 9789332522145

 Promode Kumar Saikia

 456 | © 2014



ABOUT THE BOOK

Designed as a text on *Linear Algebra* for undergraduate and postgraduate students of Mathematics, this book explains the basics comprehensively and with clarity. The flowing narrative of the book provides a refreshing approach to the subject. Drawing on decades of experience from teaching and based on extensive discussions with teachers and students, the book simplifies proofs while doing away with needless burdensome textual details.

FEATURES

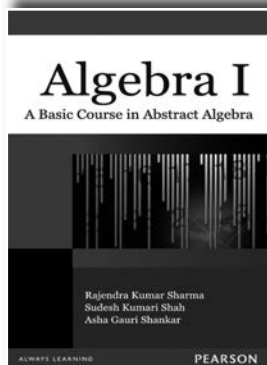
- Easy-paced treatment of basic concepts
- Re-arrangement of topics for better clarity and understanding (New)
- Coverage of additional topics such as LU factorization, definitions and examples of groups, rings and fields etc (New)
- Treatment of ranks of matrices through row and column spaces
- Explicit computations of bases of sums and intersections of subspaces
- Careful expositions of concepts such as minimal polynomial, invariant subspaces, etc.
- A simplified derivation of Jordan form
- Application of real quadratic forms to conic sections, constrained optimizations, etc.
- Introduction to singular value decomposition and generalized inverses
- Additional examples and exercises of varying difficulty
- Hints provided to selected questions
- Extensive supplements: Solution to end –of –chapter questions for Instructors and Hints and answers to selected questions for students and Additional Topics

CONTENTS

1. Matrices
 2. Systems of Linear Equations
 3. Vector Spaces
 4. Linear Maps and Matrices
 5. Linear Operators
 6. Canonical Forms
 7. Bilinear Forms
 8. Inner Product Spaces
- Bibliography

ABOUT THE AUTHOR(S)

Promode Kr. Saikia has been teaching in the North Eastern Hill University, Shillong for over thirty three years. He also taught in the undergraduate college of St. Anthony's in Shillong for two years after completing his B. Sc and M.Sc. in Mathematics from Delhi University in 1972. He obtained his Ph. D. from the University of Wisconsin, Madison (U.S.A.), working under the supervision of Prof. Louis Solomon. His research interests are in the areas of number theory and p-adic analysis. Helping students enjoy mathematics and develop an interest in problem-solving has been the main goal of his long teaching career.



ISBN: 9788131760864

FEATURES

- Learning Objectives
- Chapter end summary for quick revision

CONTENTS

1. Sets & Relations
2. Binary Operations
3. Function
4. Number system
5. Group
6. Group, properties and characteristics

- Geometric interpretation of the concept
- Answer to exercise

7. Subgroup
8. Cyclic Subgroup
9. Rings
10. System of Linear Equations
11. Matrices
12. Matrices & Linear Transformations

- Hints to difficult problems

13. Vector Space
14. Basis & Dimensions
15. Linear Transformations
16. Change of Basis
17. Eigen Value & Eigen Vector
18. Markov Process

ABOUT THE AUTHOR(S)

Rajendra Kumar Sharma is a Professor and Head of Department of Mathematics at Indian Institute of Technology Delhi. He has been teaching undergraduate and postgraduate students for more than 20 years.

Sudesh Kumari Shah is Associate Professor in Department of Mathematics at Sri Venkateshwra College, University of Delhi. She has been teaching the undergraduate and postgraduate students of Delhi University of more than 30 years.

Asha Gauri Shankar is Associate Professor in Department of Mathematics at Lakshmibai College, University of Delhi. She has received Shiksha Ratan Puraskar by India International Friendship Society.

Algebra I: A Basic Course in Abstract Algebra



Rajendra Kumar Sharma | Sudesh Kumari Shah | Asha Gauri Shankar



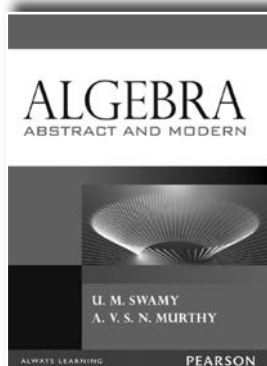
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ABOUT THE BOOK

Algebra is a compulsory paper offered to the undergraduate students of Mathematics. The majority of universities offer the subject as a two /three year paper or in two/three semester. In views of this, we are bringing out three books ranging from introductory to advance level course in Algebra.

Algebra I is the first book of the series and covers the topic required for a basic course.



ISBN: 9788131758922

Algebra: Abstract and Modern



U M Swamy | A V S N Murty

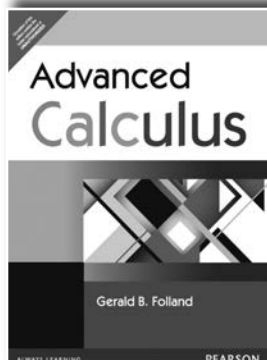


512 | © 2011

ABOUT THE BOOK

Spread across 16 chapters, this book introduces the readers to the preliminaries of algebra and then explains topics like group theory and field theory in depth. It also features a blend of numerous challenging exercises and examples that further enhance each chapter. Covering all the necessary topics on the subject, this text is an ideal text book for an undergraduate course on mathematics.

Advanced Calculus



ISBN: 9788131768570

 Gerald B. Folland

 476 | © 2002



ABOUT THE BOOK

This text presents a unified view of calculus in which theory and practice reinforce each other. It covers the theory and applications of derivatives (mostly partial), integrals, (mostly multiple or improper), and infinite series (mostly of functions rather than of numbers), at a deeper level than is found in the standard advanced calculus books.

FEATURES

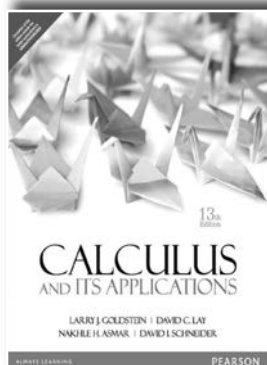
- Single and Multivariable Analysis equally balanced

- A focus on calculus itself and its applications
- Numerous worked-out examples and exercises throughout
- A chapter on Fourier analysis

CONTENTS

- | | | |
|----------------------------------------------------------|---------------------------------------------------|-------------------|
| 1. Setting the Stage. | 4. Integral Calculus | 7. Fourier Series |
| 2. Differential Calculus | 5. Line and Surface Integrals; Vector Analysis | 8. Fourier Series |
| 3. The Implicit Function Theorem and Its Applications | 6. Infinite Series | |

Calculus & Its Applications, 13/e



ISBN: 9789332535244

 Larry J. Goldstein | David Lay | Nakhle I. Asmar | David I. Schneider

 576 | © 2014

ABOUT THE BOOK

Calculus and Its Applications, Thirteenth Edition is a comprehensive, yet flexible, text for students majoring in business, economics, life science, or social sciences. The authors delve into greater mathematical depth than other texts while motivating students through relevant, up-to-date, applications drawn from students' major fields of study. The authors motivate key ideas geometrically and intuitively, providing a solid foundation for the more abstract treatments that follow. Every chapter includes a large quantity of exceptional exercises—a hallmark of this text—that address skills, applications, concepts, and technology. The MyMathLab® course for

the text features thousands of assignable exercises, built-in support for gaps in basic skills, and an array of interactive figures designed to help students visualize key concepts.

The Thirteenth Edition includes updated applications, exercises, and technology coverage. The authors have also added more study tools, including a prerequisite skills diagnostic test and a greatly improved end-of-chapter summary, and made content improvements based on user reviews.

FEATURES

- The student-oriented presentation helps students as they complete homework. The text's numerous examples are designed to help students learn independently.

- Time-tested exercise sets have been carefully designed and sorted by level of difficulty, allowing instructors to choose the most appropriate exercises for their students. Each section also has technology exercises, encouraging students to use technology to solve problems. These problems are clearly labeled for instructor convenience.
- Applications contain up-to-date data to illustrate the relevance of the mathematical concepts. Topics include health expenditures, the federal deficit, mortgages, debt per capita, and price of gasoline.
- Check Your Understanding exercises at the end of each section target the concepts that can cause confusion for students. Complete solutions are provided for these unique exercises following the exercise sets within the text.
- “Caution!” notes provide tips on common pitfalls and mistakes by students and appear at relevant times throughout the text.
- Incorporating Technology features at the end of most sections include useful information about the use of graphing calculators. These features are optional and clearly marked. Additional support material can be downloaded from this book’s Companion Website.

CONTENTS

Functions

1. The Derivative
2. Applications of the Derivative
3. Techniques of Differentiation
4. The Exponential and Natural Logarithm Functions
5. Applications of the Exponential and Natural Logarithm Functions

6. The Definite Integral
 7. Functions of Several Variables
 8. The Trigonometric Functions
 9. Techniques of Integration
 10. Differential Equations
- Appendix: Areas under the Standard Normal Curve
Answers to Exercises

ABOUT THE AUTHOR(S)

Larry Goldstein has received several distinguished teaching awards, given more than fifty Conference and Colloquium talks & addresses, and written more than fifty books in math and computer programming. He received his PhD at Princeton and his BA and MA at the University of Pennsylvania. He also teaches part time at Drexel University.

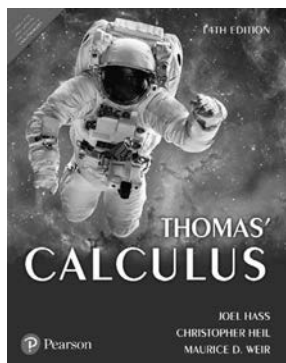
David Schneider, who is known widely for his tutorial software, holds a BA degree from Oberlin College and a PhD from MIT. He is currently an associate professor of mathematics at the University of Maryland. He has authored eight widely used math texts, fourteen highly acclaimed computer books, and three widely used mathematics software packages. He has also produced instructional videotapes at both the University of Maryland and the BBC.

Martha Siegel holds a BA from Russell Sage College, attended Rensselaer Polytechnic Institute as a special student, and received his PhD at the University of Rochester. From 1966 until 1971 she taught at Goucher University in Baltimore. Since 1971 she has been a professor at Towson State University, also in Maryland. Professor Siegel has been on the writing team of this book since the fifth edition and is also the co-author of a precalculus reform book.

Thomas’ Calculus, 14/e

 **Joel Hass | Christopher Heil | Maurice D. Weir**

 **1208** | © **2018**



ISBN: 9789353060411

ABOUT THE BOOK

Thomas’ Calculus, Fourteenth Edition, introduces students to the intrinsic beauty of calculus and the power of its applications. For more than half a century, this text has been revered for its clear and precise explanations, thoughtfully chosen examples, superior figures, and time-tested exercise sets.

FEATURES

- **Strong exercise sets** feature a great breadth of problems—progressing from skills problems to applied and theoretical problems—to encourage students to think about and practice the concepts until they achieve mastery.
- **Complete and precise multivariable coverage** enhances the connections of multivariable ideas with their single-variable analogues studied earlier in the book.

NEW TO THIS EDITION

- **Updated graphics** emphasize clear visualization and mathematical correctness.
- **New examples and figures** have been added throughout all chapters, based on user feedback.
- **New types of homework exercises**, including many geometric in nature, have been added to provide different perspectives and approaches to each topic.
- **Short URLs** have been added to the historical margin notes, allowing students to navigate directly to online information.
- **New annotations within examples** guide the student through the problem solution and emphasize that each step in a mathematical argument is rigorously justified.

CONTENTS

- | | |
|---------------------------------------|--------------------------------------------------|
| 1. Functions | 11. Parametric Equations and Polar Coordinates |
| 2. Limits and Continuity | 12. Vectors and the Geometry of Space |
| 3. Derivatives | 13. Vector-Valued Functions and Motion in Space |
| 4. Applications of Derivatives | 14. Partial Derivatives |
| 5. Integrals | 15. Multiple Integrals |
| 6. Applications of Definite Integrals | 16. Integrals and Vector Fields |
| 7. Transcendental Functions | 17. Second-Order Differential Equations (Online) |
| 8. Techniques of Integration | Appendices |
| 9. First-Order Differential Equations | Answers to Odd-Numbered Exercises |
| 10. Infinite Sequences and Series | |

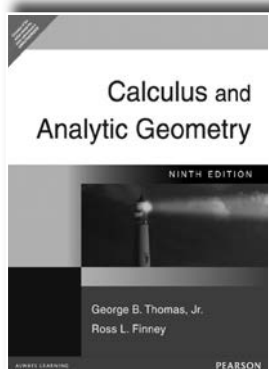
ABOUT THE AUTHOR(S)

George B. Thomas, Jr. (late) of the Massachusetts Institute of Technology, was a professor of mathematics for thirty-eight years; he served as the executive officer of the department for ten years and as graduate registration officer for five years. Thomas held a spot on the board of governors of the Mathematical Association of America and on the executive committee of the mathematics division of the American Society for Engineering Education.

Joel Hass received his PhD from the University of California Berkeley. He is currently a professor of mathematics at the University of California Davis. He has coauthored widely used calculus texts as well as calculus study guides. He is currently on the editorial board of several publications, including the Notices of the American Mathematical Society.


Christopher Heil received his PhD from the University of Maryland. He is currently a professor of mathematics at the Georgia Institute of Technology.

Maurice D. Weir (late) of the the Naval Postgraduate School in Monterey, California was Professor Emeritus as a member of the Department of Applied Mathematics. He held a DA and MS from Carnegie-Mellon University and received his BS at Whitman College.



ISBN: 9788177583250

Calculus & Analytical Geometry, 9/e

 **George B. Thomas Jr.**

 **1264** | © **2006**

ABOUT THE BOOK

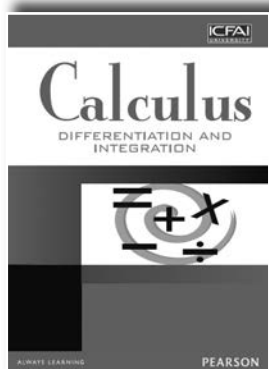
George Thomas' clear, precise calculus text with superior applications defined the modern-day, three-semester or four-quarter calculus course. The ninth edition of this proven text has been carefully revised to give students the solid base of material they will need to succeed in math, science, and engineering programs. This edition includes recent innovations in teaching and learning that involve technology, projects, and group work.

FEATURES

- Exercises have been reorganized to facilitate assigning a subset of the material in a section.
- New Computer Algebra System (CAS) explorations and projects that require a CAS have been included.
- Technology Connection notes appear throughout the text suggesting experiments students might do with a grapher to supplement their understanding of given topic.

CONTENTS

1. Preliminaries
2. Limits and Continuity
3. Derivatives
4. Applications of Derivatives
5. Integration
6. Applications of Integrals
7. Transcendental Functions
8. Techniques of Integration
9. Infinite Series
10. Conic Sections, Parametrized Curves, and Polar Coordinates
11. Vectors and Analytic Geometry in Space
12. Vector-Valued Functions and Motion in Space
13. Multivariable Functions and Partial Derivatives
14. Multiple Integrals
15. Integration in Vector Fields



ISBN: 9788131758908

Calculus: Differentiation and Integration

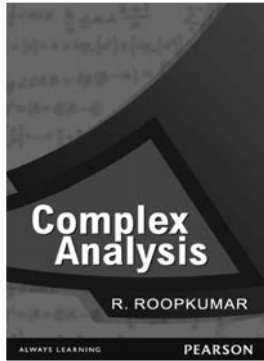
 **ICFAI University Press**

 **680** | © **2012**

ABOUT THE BOOK

Calculus-Differentiation and Integration focuses on the introductory aspects of the course. This book has been tailor made for the UG students' in an elegant way without unnecessary jargon. Adequate emphasis has been given on basic principles, theory and pedagogy.

Complex Analysis



ISBN: 9789332537613

 **R. Roopkumar**

 **472** | © **2014**

ABOUT THE BOOK

This text book is intended for both under graduate and post graduate Courses in complex analysis. The book has been written on complex analysis by explaining each and every argument in any proof in a lucid manner so that the Book would be an ideal self study material for the students. Since many concepts in complex analysis are geometrical in nature, more geometrical arguments are given, without any compromise in rigor.

CONTENTS

Preliminaries

1. Analytic Functions
2. Rational Functions and Multivalued Functions
3. Complex Integration
4. Series Developments and Infinite Products

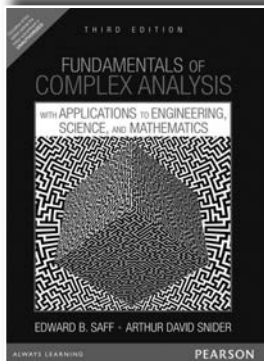
5. Residue Calculus

6. Some Interesting Theorems

7. Elliptic Functions

Bibliography

Fundamentals of Complex Analysis with Applications to Engineering, Science, and Mathematics, 3/e



ISBN: 9789332535091

 **Edward B. Saff**

 **520** | © **2014**

ABOUT THE BOOK

This is the best seller in this market. It provides a comprehensive introduction to complex variable theory and its applications to current engineering problems. It is designed to make the fundamentals of the subject more easily accessible to students who have little inclination to wade through the rigors of the axiomatic approach. Modeled after standard calculus books—both in level of exposition and layout—it incorporates physical applications throughout the presentation, so that the mathematical methodology appears less sterile to engineering students.

FEATURES

- NEW—Downloadable MATLAB toolbox—A state-of-the-art computer aid.
- NEW—Modern exposition of the use of complex numbers in linear analysis—AC circuits, kinematics, signal processing.
- NEW—Section on Julia sets—The graphical depiction of iterated complex functions leads to interesting fractal patterns.
- NEW—Early introduction of Euler's formula.
- Physical interpretation of properties of analytic function as equilibrium temperature profiles
- Two alternative presentations of Cauchy's theorem are given

COMPLEX ANALYSIS

- (Ch. 4—The first is based on the deformation of contours (homotopy). The second interprets contour integrals in terms of line integrals and invokes Green's theorem to complete the argument. These developments are presented parallel to one another. Either one may be read, and the other omitted, without disrupting the exposition.
- Frequent use of analogies from elementary calculus or algebra to introduce complex concepts.
- Applications to “real world” engineering problems.

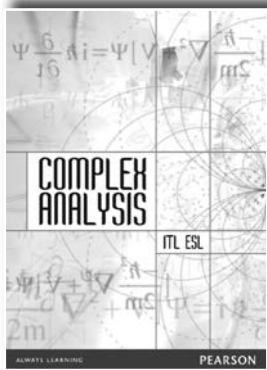
CONTENTS

1. Complex Numbers.
2. Analytic Functions.
3. Elementary Functions.
4. Complex Integration.
5. Series Representations for Analytic Functions.
6. Residue Theory.
7. Conformal Mapping.

Answers to Odd-Numbered Problems.

ABOUT THE AUTHOR(S)

Edward B. Saff, Vanderbilt University



ISBN: 9788131772492

Complex Analysis



ITL Education Solutions Limited



480 | © 2012

ABOUT THE BOOK

Complex Analysis presents a comprehensive and student-friendly introduction to the important concepts of the subject. Its clear, concise writing style and numerous applications make the basics easily accessible to students, and serves as an excellent resource for self-study. Its comprehensive coverage includes:

- Cauchy-Goursat theorem, along with the description of connected domains and its extensions
- A separate chapter on Analytic Functions explaining the concepts of limits, continuity and differentiability

FEATURES

- Over 150 illustrations to help the reader visualize complex relationships
- 180 solved problems and 729 unsolved problems for practice
- Answers to unsolved problems included

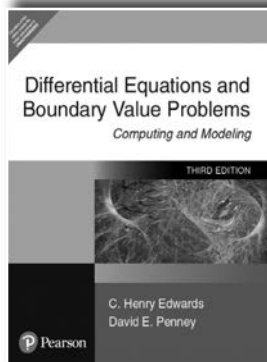
CONTENTS

1. Complex Numbers
2. Analytic Functions
3. Elementary Functions
4. Complex Integration
5. Sequence and Series
6. Singularities and Residues
7. Applications of Residues
8. Bilinear and Conformal Transformations
9. Special Topics

ABOUT THE AUTHOR(S)

ITL Education Solutions Limited (ITL ESL) is a part of the ITL group, which has operations all over the world with a significant presence in education and IT-enabled services. It specializes in handling educational projects in IT domains with a dedicated R&D wing of industry experts that helps in designing and developing content.

Differential Equations and Boundary Value Problems: Computing and Modeling, 3/e



ISBN: 9788131728222



C. Henry Edwards | David E. Penney



708 | © 2010



ABOUT THE BOOK

This best-selling text by these well-known authors blends the traditional algebra problem solving skills with the conceptual development and geometric visualization of a modern differential equations course that is essential to science and engineering students. It reflects the new qualitative approach that is altering the learning of elementary differential equations, including the wide availability of scientific computing environments like Maple, Mathematica, and MATLAB. Its focus balances the traditional manual methods with the new computer-based methods that illuminate qualitative phenomena and make accessible a wider range of

more realistic applications. Seldom-used topics have been trimmed and new topics added: it starts and ends with discussions of mathematical modeling of real-world phenomena, evident in figures, examples, problems, and applications throughout the text.

FEATURES

- **Approximately 2000 problems**—These problems span the range from computational problems to applied and conceptual problems. There are over 300 new qualitative problems in this edition.
- **NEW - Emphasis on the intersection of technology and ODEs**—Recognizes the need to instruct students in the new methods of computing differential equations.
- **NEW - 300 new computer-generated graphics**—Show vivid pictures of slope fields, solution curves, and phase plane portraits.
- **NEW - Extensive expansion of qualitative solutions to the problem sets.**
- **NEW - Fresh numerical methods emphasis**—Made possible by the early introduction of numerical solution techniques, mathematical modeling, stability and qualitative properties of differential equations. The text includes generic numerical algorithms that can be implemented in various technologies.
- **NEW - Application Modules**—Follow key sections throughout the text; while many involve computational investigations, they are written in a technology-neutral manner. Technology-specific systems modules are available in the accompanying Applications Manual.
- **NEW - Leaner and more streamlined coverage**—Shaped by the availability of computational aids.

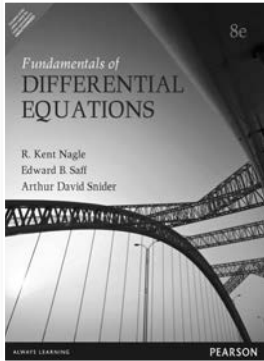
CONTENTS

- | | | |
|-----------------------------------------------|-------------------------------------------------------|--------------------------------------------------|
| 1. First Order Differential Equations. | 4. Introduction to Systems of Differential Equations. | 8. Power Series Methods. |
| 2. Mathematical Models and Numerical Methods. | 5. Linear Systems of Differential Equations. | 9. Fourier Series Methods. |
| 3. Linear Equations of Higher Order. | 6. Nonlinear Systems and Phenomena. | 10. Eigenvalues and Boundary Value Problems. |
| | 7. Laplace Transform Methods. | Appendix: Existence and Uniqueness of Solutions. |
| | | Answers to Selected Problems. |


ABOUT THE AUTHOR(S)

C. Henry Edwards, University of Georgia, Athens
David E. Penney, University of Georgia, Athens

Fundamentals of Differential Equations, 8/e



ISBN: 9789332570979

 R. Kent Nagle | Edward B. Saff | Arthur David Snider

 696 | © 2016

ABOUT THE BOOK

Fundamentals of Differential Equations presents the basic theory of differential equations and offers a variety of modern applications in science and engineering. Available in two versions, these flexible texts offer the instructor many choices in syllabus design, course emphasis (theory, methodology, applications, and numerical methods), and in using commercially available computer software. *Fundamentals of Differential Equations*, Eighth Edition is suitable for a one-semester sophomore- or junior-level course. *Fundamentals of Differential Equations* with Boundary Value Problems, Sixth Edition, contains enough material for a two-semester course that covers and builds on boundary value problems. The Boundary Value Problems

version consists of the main text plus three additional chapters (Eigenvalue Problems and Sturm-Liouville Equations; Stability of Autonomous Systems; and Existence and Uniqueness Theory).

FEATURES

- Applications-driven sections are included in the chapter on linear second-order equations.
- Modernized treatment of the chapter on the introduction to systems and phase plane analysis increases student comprehension of the material.
- Group Projects relating to the material covered appear at the end of each chapter. They may involve more challenging applications, delve deeper into theory, or introduce more advanced topics.
- The expanded coverage of dynamical systems is consistent with the level of the text.
- The phase line is covered at the beginning of the text.
- Updated Instructor Manuals for MAPLE/Matlab/Mathematica, tied to the development of the text, Included are suggestions on incorporating these technologies into the courses, along with sample worksheets for labs.

CONTENTS

- | | | |
|------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------|
| 1. Introduction | 4. Linear Second-Order Equations | 8. Series Solutions of Differential Equations |
| 2. First-Order Differential Equations | 5. Introduction to Systems and Phase Plane Analysis | 9. Matrix Methods for Linear Systems |
| 3. Mathematical Models and Numerical Methods Involving First Order Equations | 6. Theory of Higher-Order Linear Differential Equations | 10. Partial Differential Equations |
| | 7. Laplace Transforms | Appendices |

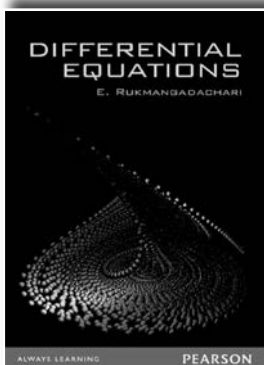
Differential Equations

 E. Rukmangadachari

 472 | © 2012

ABOUT THE BOOK

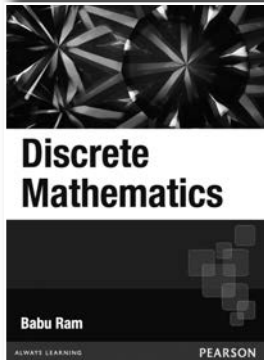
This book presents the basics of differential equations, adhering to the UGC curriculum for undergraduate courses on differential equations offered by all Indian universities. With equal emphasis on theoretical and practical concepts, the book provides a balanced coverage of all topics essential to master the subject at the undergraduate level, making it an ideal classroom text.



ISBN: 9788131770375

DISCRETE MATHEMATICS AND GRAPH THEORY

Discrete Mathematics



ISBN: 9788131733103

 **Babu Ram**

 **584** | © **2011**



ABOUT THE BOOK

Discrete Mathematics is an integral part of any undergraduate as well as post graduate courses in Computer Science and Mathematics. The syllabi of all these courses have been studied in depth and utmost care has been taken to ensure that all the essential topics in discrete structures are adequately emphasized. The book will enable the students to develop the requisite computational skills needed in software engineering.

FEATURES

- C Programs of important algorithms
- Extensive coverage of Boolean Algebra, Algebraic Structures and Graph Theory
- 550 Solved examples and 170 practice problems with hints/answers

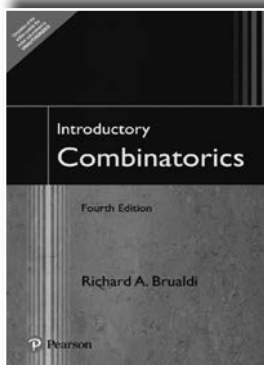
CONTENTS

- | | | |
|----------------------------------|-------------------------|----------------------------|
| 1. Sets, Relations and Functions | 5. Algebraic Structures | 8. Graphs |
| 2. Counting | 6. Lattices | 9. Finite State Automata |
| 3. Recurrence Relations | 7. Boolean Algebra | 10. Languages and Grammars |
| 4. Logic | | |

ABOUT THE AUTHOR(S)

Babu Ram received his Ph.D. degree in mathematics in 1973 from Kurukshetra University, Kurukshetra, India. He was formerly Professor of Mathematics and Dean, Faculty of Physical Sciences at Maharshi Dayanand University, Rohtak and has been teaching mathematics for the past 36 years. A member of Indian Mathematical Society and the American Mathematical Society, Professor Babu Ram has published 42 research papers in Real and Functional Analysis in international journals of repute. He is on the board of reviewers of both American Mathematical Reviews and Zentralblatt für Mathematik und ihre Grengebiete, Berlin. Presently, he is working as Director MCA at Manav Rachna International University, Faridabad.

Introductory Combinatorics, 4/e



ISBN: 9788131718827

 **Richard A. Brualdi**

 **640** | © **2008**

ABOUT THE BOOK

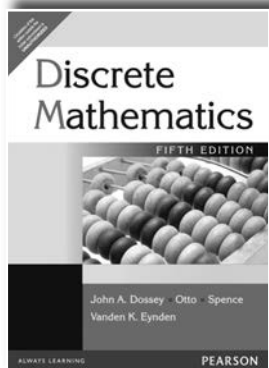
This, the best selling book in its market, emphasizes combinatorial ideas including the pigeon-hole principle, counting techniques, permutations and combinations, Pólya counting, binomial coefficients, inclusion-exclusion principle, generating functions and recurrence relations, and combinatorial structures (matchings, designs, graphs), flows in networks.

FEATURES

- NEW - New problems in each chapter-Many more challenging problem sets have been added.
- Presents an excellent treatment of Polya's Counting Theorem that doesn't assume students have seen group theory.
- Many worked examples.

CONTENTS

1. What Is Combinatorics?
2. The Pigeonhole Principle.
3. Permutations and Combinations.
4. Generating Permutations and Combinations.
5. The Binomial Coefficients.
6. The Inclusion-Exclusion Principle and Applications.
7. Recurrence Relations and Generating Functions.
8. Special Counting Sequences.
9. Matchings in Bipartite Graphs.
10. Combinatorial Designs.
11. Introduction to Graph Theory.
12. Digraphs and Networks.
13. More on Graph Theory.
14. Polya Counting.



ISBN: 9788131766262

Discrete Mathematics, 5/e



John A Dossey | Charles Vanden Eynden | Albert D Otto | Lawrence E Spence



684 | © 2006



ABOUT THE BOOK

An ever-increasing percentage of mathematic applications involve discrete rather than continuous models. Driving this trend is the integration of the computer into virtually every aspect of modern society. Intended for a one-semester introductory course, the strong algorithmic emphasis of *Discrete Mathematics* is independent of a specific programming language, allowing students to concentrate on foundational problem-solving and analytical skills. Instructors get the topical breadth and organizational flexibility to tailor the course to the level and interests of their students.

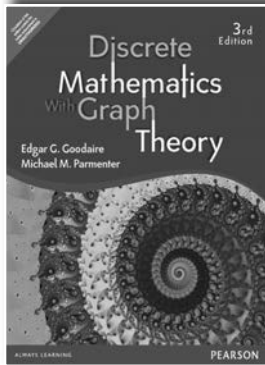
FEATURES

- Approach: A strong algorithmic emphasis serves to unify the material. Algorithms are presented in English, eliminating the need for knowledge of a particular programming language.
- Supplementary Exercises: Ending each chapter, these sets of supplementary exercises reprise the most important concepts and techniques of the chapter and explore new ideas not covered elsewhere.
- Coding Theory: A new chapter 3 has been added that includes material on Matrix Codes, Error Correcting Codes, Congruence, Euclidean Algorithm and Diophantine Equations, and the RSA Algorithm.
- Choice of Topics: Based upon the recommendations of respected professional organizations--the MAA's Panel on Discrete Mathematics in the First Two Years, the NCTM's Principles and Standards for School Mathematics, and the CBMS's recommendations for the mathematical education of teachers--this text offers a solid, comprehensive introduction to discrete mathematics.

CONTENTS

1. An Introduction to Combinatorial Problems and Techniques
2. Recurrence Relations and Generating Functions
3. Combinatorial Circuits and Finite State Machines
4. Sets, Relations, and Functions
5. Coding Theory
6. Graphs
7. Trees
8. Matching
9. Network Flows
10. Counting Techniques

Discrete Mathematics with Graph Theory, 3/e



ISBN: 9789332549777

 Edgar G. Goodaire | Michael M. Parmenter

 592 | © 2015

ABOUT THE BOOK

Far more “user friendly” than the vast majority of similar books, this text is truly written with the “beginning” reader in mind. The pace is tight, the style is light, and the text emphasizes theorem proving throughout. The authors emphasize “Active Reading,” a skill vital to success in learning how to think mathematically (and write clean, error-free programs).

FEATURES

- A friendly, conversational, humorous style – Makes this top seller stimulating and engaging for the reader.
- More than 150 Pauses (short questions) – Inserted at strategic points. Full solutions to Pauses are included at the end of each section.
- Emphasis on writing and critical-thinking skills.
- More than 300 worked examples and 3500 exercises. The problem sets are carefully graded by level of difficulty.
- Topics in discrete math are used as a vehicle for teaching proofs.
- An unusually strong emphasis on graph theory, incorporating its coverage throughout six chapters.
- A glossary of definitions and a list of symbols and notation.

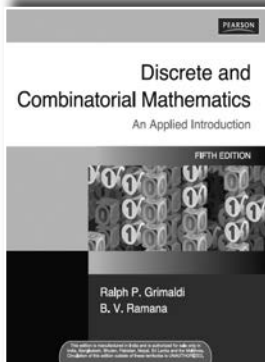
CONTENTS

- | | | |
|----------------------------|----------------------------------|----------------------------------------|
| 0. Yes, There Are Proofs! | 6. Principles of Counting | 11. Applications of Paths and Circuits |
| 1. Logic | 7. Permutations and Combinations | 12. Trees |
| 2. Sets and Relations | 8. Algorithms | 13. Planar Graphs and Colorings |
| 3. Functions | 9. Graphs | 14. The Max Flow – Min Cut Theorem |
| 4. The Integers | 10. Paths and Circuits | |
| 5. Induction and Recursion | | |

ABOUT THE AUTHOR(S)

Edgar G. Goodaire, Memorial University of Newfoundland
Michael M. Parmenter, Memorial University of Newfoundland

Discrete and Combinatorial Mathematics, 5/e



ISBN: 9788177584240

 Ralph P. Grimaldi | B. V. Ramana

 1056 | © 2006



ABOUT THE BOOK

This fifth edition continues to improve on the features that have made it the market leader. The text offers a flexible organization, enabling instructors to adapt the book to their particular courses. The book is both complete and careful, and it continues to maintain its emphasis on algorithms and applications. Excellent exercise sets allow students to perfect skills as they practice. This new edition continues to feature numerous computer science applications-making this the ideal text for preparing students for advanced study.

FEATURES

- Historical reviews and biographies bring a human element to their assignments.
- Chapter summaries allow students to review what they have learned.
- Expanded treatment of discrete probability in Chapter 3.
- New material on cryptology, private-key cryptosystems in Chapter 13, public-key RSA cryptosystems in Chapter 15.

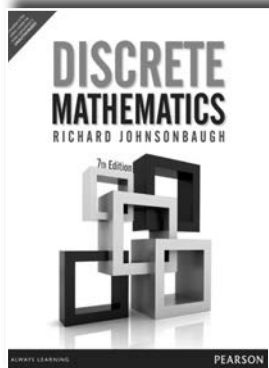
CONTENTS

1. Fundamental Principles of Counting
2. Fundamentals of Logic
3. Set theory
4. Properties of the integers:Mathematical Induction
5. Relations and Functions
6. Language:Finite State Machines
7. Relations:The Second Time Around
8. The Principle of Inclusion and Exclusion
9. Generating Functions
10. Recurrence Relations
11. An introduction to graph theory
12. Trees
13. Rings and modular arithmetic
14. Boolean algebra and switching functions
15. Algebraic structures, semigroups, monoids, groups, coding theory and polya's method of enumeration
16. Finite fields and combinatorial designs

ABOUT THE AUTHOR(S)

Ralph P. Grimaldi, Rose-Hulman Institute of Technology

B.V. Ramana, Professor of Mathematics,JNTU College of Engineering,Kakinada,India& Professor of Mathematics, Eritrean Institute of Technology, Eritrea(N.E.Africa)(On Special duty)



ISBN: 9789332535183

Discrete Mathematics, 7/e



Richard Johnsonbaugh



768 | © 2014

ABOUT THE BOOK

Focused on helping students understand and construct proofs and expanding their mathematical maturity, this best-selling text is an accessible introduction to discrete mathematics. Johnsonbaugh's algorithmic approach emphasizes problem-solving techniques. The Seventh Edition reflects user and reviewer feedback on both content and organization.

FEATURES

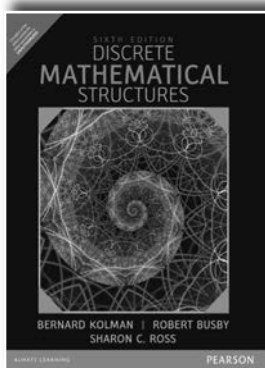
- Strong emphasis on reading and writing proofs – Illustrates most proofs of theorems with annotated figures to provide additional explanation and insight into the proofs.
- Extensive discussion of algorithms, recursive algorithms, and the analysis of algorithms – The algorithms are written in a flexible form of pseudocode, which resembles currently popular languages such as C, C++, and Java.
- Over 500 worked examples throughout the text.
- Over 3500 exercises – Approximately one third have answers at the back of the book.
- Extensive applications with an emphasis on computer science.
- Figures and tables – Illustrate concepts, show how algorithms work, elucidate proofs, and motivate the material. Figure captions provide additional explanation and insight into figures accompanying proofs.

CONTENTS

1. Sets and Logic
2. Proofs
3. Functions, Sequences, and Relations
4. Algorithms
5. Introduction to Number Theory
6. Counting Methods and the Pigeonhole Principle
7. Recurrence Relations
8. Graph Theory
9. Trees
10. Network Models
11. Boolean Algebras and Combinatorial Circuits Automata, Grammars, and Languages

ABOUT THE AUTHOR(S)

Richard Johnsonbaugh is Professor Emeritus of Computer Science, Telecommunications and Information Systems, DePaul University, Chicago. Prior to his 20-year service at DePaul University, he was a member and sometime chair of the mathematics departments at Morehouse College and Chicago State University. He has a B.A. degree in mathematics from Yale University, M.A. and Ph.D. degrees in mathematics from the University of Oregon, and an M.S. degree in computer science from the University of Illinois, Chicago. His most recent research interests are in pattern recognition, programming languages, algorithms, and discrete mathematics. He is the author or co-author of numerous books and articles in these areas. Several of his books have been translated into various languages. He is a member of the Mathematical Association of America.



ISBN: 9789332549593

Discrete Mathematical Structures, 6/e

 **Bernard Kolman | Robert Busby | Sharon C. Ross**

 **552 | © 2015**

ABOUT THE BOOK

Discrete Mathematical Structures, Sixth Edition, offers a clear and concise presentation of the fundamental concepts of discrete mathematics. Ideal for a one-semester introductory course, this text contains more genuine computer science applications than any other text in the field.

This book is written at an appropriate level for a wide variety of majors and non-majors, and assumes a college algebra course as a prerequisite.

FEATURES

- The focus on computer science prepares students for future computer science careers.
- The emphasis on proof lays the foundation for mathematical thinking.
- Clear organization of topics prevents students from being overwhelmed. The authors treat relations and digraphs as two aspects of the same fundamental idea, which is then used as the basis of virtually all the concepts introduced in the book.
- Vignettes of mathematical history open each chapter, providing students with a practical background of how these ideas were developed.
- Additional number theory coverage provides more information on the properties of integers, including base n representations, and gives more contexts for isomorphism.
- Cryptology is explored throughout the book, introducing students to this exciting field.
- Coverage of coding provides students with a full picture of all of its aspects, including efficiency, effectiveness, and security. A set of coding exercises for each chapter is also included in Appendix C.
- Exercises emphasize multiple representations of concepts, and provide practice on reading and writing mathematical proofs.
- Experiments provide opportunities for in-depth exploration and discovery, as well as for writing and for working in groups. Topics include weighted voting systems, Petri nets, Catalan numbers, and others.
- End-of-chapter material includes Tips for Proofs, a summary of Key Ideas, and a Self-Test, which contains a set of conceptual review questions to help students identify and synthesize the main ideas of each chapter.

CONTENTS

- | | | |
|---------------------------|-----------------------------------|-----------------------------------------|
| 1. Fundamentals | 5. Functions | 9. Semigroups and Groups |
| 2. Logic | 6. Order Relations and Structures | 10. Groups and Coding |
| 3. Counting | 7. Trees | 11. Languages and Finite-State Machines |
| 4. Relations and Digraphs | 8. Topics in Graph Theory | |

ABOUT THE AUTHOR(S)

Bernard Kolman received his BS in mathematics and physics from Brooklyn College in 1954, his ScM from Brown University in 1956, and his PhD from the University of Pennsylvania in 1965, all in mathematics. He has worked as a mathematician for the US Navy and IBM. He has been a member of the mathematics department at Drexel University since 1964, and has served as Acting Head of the department. His research activities have included Lie algebra and perations research. He belongs to a number of professional associations and is a member of Phi Beta Kappa, Pi Mu Epsilon, and Sigma Xi.

Robert C. Busby received his BS in physics from Drexel University in 1963, his AM in 1964 and PhD in 1966, both in mathematics from the University of Pennsylvania. He has served as a faculty member of the mathematics department at Drexel since 1969. He has consulted in applied mathematics and industry and government, including three years as a consultant to the Office of Emergency Preparedness, Executive Office of the President, specializing in applications of mathematics to economic problems. He has written a number of books and research papers on operator algebra, group representations, operator continued fractions, and the applications of probability and statistics to mathematical demography.

Sharon Cutler Ross received a SB in mathematics from the Massachusetts Institute of Technology in 1965, an MAT in secondary mathematics from Harvard University in 1966, and a PhD in mathematics from Emory University in 1976. She has taught junior high, high school, and college mathematics, and has taught computer science at the collegiate level. She has been a member of the mathematics department at DeKalb College. Her current professional interests are in undergraduate mathematics education and alternative forms of assessment. Her interests and associations include the Mathematical Association of America, the American Mathematical Association of Two-Year Colleges, and UME Trends. She is a member of Sigma Xi and other organizations.

Discrete Mathematics for Computer Scientists, 2/e



Joe L Mott | Abraham Kandel



768 | © 2015



ISBN: 9789332550490

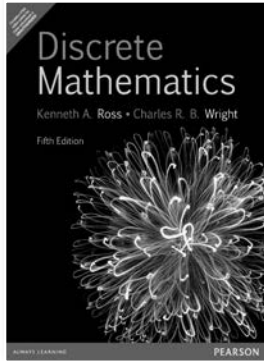
dealt with.

- Gives good insights into graphs as a modeling tool.
- Gives better understanding of computer solutions of differential equations.
- Many worked out examples and solutions follow each section.

CONTENTS

- Acknowledgments
- A Note to the Reader
- Foundations
- Elementary Combinatorics
- Recurrence Relations
- Relations and Digraphs
- Graphs
- Boolean Algebras
- Network Flows
- Representation and Manipulation of Imprecision
- Bibliography

Discrete Mathematics, 5/e



ISBN: 9788131790618

- NEW - Chapter on algebraic structures
- Comprehensive coverage of logic and proofs
- Full chapter on recursion

CONTENTS

1. Sets, Sequences, and Functions
2. Elementary Logic
3. Relations
4. Induction and Recursion
5. Counting
6. Introduction to Graphs and Trees
7. Recursion, Trees and Algorithms
8. Digraphs
9. Discrete Probability
10. Boolean Algebra
11. More on Relations
12. Algebraic Structures
13. Predicate Calculus and Infinite Sets

ABOUT THE AUTHOR(S)

Kenneth A. Ross, University of Oregon
Charles R. Wright, University of Oregon

 Kenneth A Ross | Charles R. Wright

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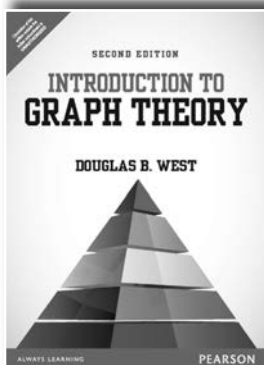
ABOUT THE BOOK

Revised for extra clarity, the distinguishing characteristic of Ross and Wright is a sound mathematical treatment that increases smoothly in sophistication. The text presents utility-grade discrete math tools so students can understand them, use them, and move on to more advanced mathematical topics

FEATURES

- NEW - Over 270 supplementary exercises All with answers
- NEW - Full chapter on discrete probability

Introduction to Graph Theory, 2/e



ISBN: 9789332549654

 Douglas B. West

 470 | © 2015

ABOUT THE BOOK

For undergraduate or graduate courses in Graph Theory in departments of mathematics or computer science.

This text offers a comprehensive and coherent introduction to the fundamental topics of graph theory. It includes basic algorithms and emphasizes the understanding and writing of proofs about graphs. Thought-provoking examples and exercises develop a thorough understanding of the structure of graphs and the techniques used to analyze problems. The first seven chapters form the basic course, with advanced material in Chapter 8.

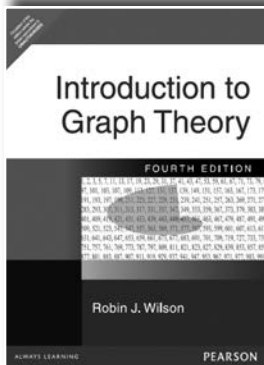
FEATURES

- NEW - Appendix of Mathematical Background—Appendix A presents background material on logical statements, basic set theory, equivalence relations, and elementary counting.
- Makes review material easily accessible for beginning students (Chapter 1 still discusses central proof techniques).
- NEW - Expanded and improved selection of exercises—Exercises have been added, especially easier exercises, and many exercises have been further clarified.
- Enlarged selection of easier exercises provides greater encouragement for beginning students and makes the material useful for a broader range of students.
- NEW - Reorganization of material. Some material has been reorganized to provide a smoother development and clearer focus on essential material with optional material clearly designated or removed.
- Facilitates more efficient learning by aiding instructors in designing courses and students in seeing what is important.
- NEW - Definitions more prominent. Terms being defined are in bold type and most important definitions occur in numbered items.
- Makes definitions easier for students to find.
- NEW - Hints for selected exercises—More hints have been added as Appendix C.
- Allows students to learn at their own pace; weaker students have more opportunity to be successful; stronger students have more opportunity to be stimulated.
- Logical organization—Concepts are introduced as needed, achieving a gradual increase in intellectual difficulty.
- Allows students to find fundamental results in the early sections of chapters and to master elementary concepts in preparation for later applications.
- Additional topics—Final chapter is a bridge to advanced topics.
- Provides supplementary reading for good students and flexibility in advanced courses.
- Over 400 illustrations.
- Allows students to check their understanding of definitions and of steps in proofs.
- Over 1200 exercises—Ranging from relatively straightforward applications of ideas in the text to subtle problems requiring some ingenuity.
- Helps students to understand the ideas of the course and to improve their presentation of coherent arguments.
- Graduation of exercises—Denotes easier exercises by (-), harder by (+), and particularly valuable or instinctive exercises by (!).
- Aids instructor in selecting appropriate exercises and students in practicing for tests.

CONTENTS

1. Fundamental Concepts.
What Is a Graph? Paths, Cycles, and Trails. Vertex Degrees and Counting. Directed Graphs.
 2. Trees and Distance.
Basic Properties. Spanning Trees and Enumeration. Optimization and Trees.
 3. Matchings and Factors.
Matchings and Covers. Algorithms and Applications. Matchings in General Graphs.
 4. Connectivity and Paths.
Cuts and Connectivity. k -connected Graphs. Network Flow Problems.
 5. Coloring of Graphs.
Vertex Colorings and Upper Bounds. Structure of k -chromatic Graphs. Enumerative Aspects.
 6. Planar Graphs.
Embeddings and Euler's Formula. Characterization of Planar Graphs. Parameters of Planarity.
 7. Edges and Cycles.
Line Graphs and Edge-Coloring. Hamiltonian Cycles. Planarity, Coloring, and Cycles.
 8. Additional Topics (Optional).
Perfect Graphs. Matroids. Ramsey Theory. More Extremal Problems. Random Graphs. Eigenvalues of Graphs.
- Appendix A: Mathematical Background.
Appendix B: Optimization and Complexity.
Appendix C: Hints for Selected Exercises.
Appendix D: Glossary of Terms.
Appendix E: Supplemental Reading.
Appendix F: References.

Introduction to Graph Theory, 4/e



ISBN: 9788131706985

 **Robin J. Wilson**

 **184** | © **1996**

ABOUT THE BOOK

Graph Theory has recently emerged as a subject in its own right, as well as being an important mathematical tool in such diverse subjects as operational research, chemistry, sociology, and genetics. This book provides a comprehensive introduction to the subject.

FEATURES

- Provides a basic foundation for the course.
- Text has been completely revised.
- Includes full range of exercises of varying difficulty.
- Incorporates new material on algorithms, tree-searches, and graph-theoretical puzzles.
- Full solutions are provided for many of the exercises.
- Includes a chapter on matroid theory, which is used to consolidate some of the material from earlier chapters.

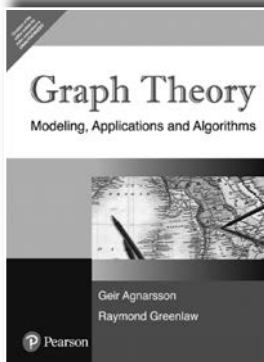
CONTENTS

1. Introduction.
2. Definitions and Examples.
3. Paths and Cycles.
4. Trees.
5. Planarity.
6. Coloring Graphs.
7. Digraphs.
8. Matching, Marriage and Menger's Theorem.
9. Matroids.

ABOUT THE AUTHOR(S)

Robin J. Wilson is Dean and Director of Studies in the Faculty of Mathematics and Computing at the Open University.

Graph Theory: Modeling, Applications and Algorithms



ISBN: 9788131717288

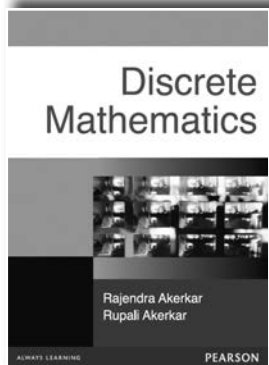
 **Geir Agnarsson | Raymond Greenlaw**

 **464** | © **2008**



ABOUT THE BOOK

This new text introduces basic concepts, definitions, theorems, and examples from graph theory. The authors present a collection of interesting results from mathematics that involve key concepts and proof techniques; covers design and analysis of computer algorithms for solving problems in graph theory.



ISBN: 9788131717943

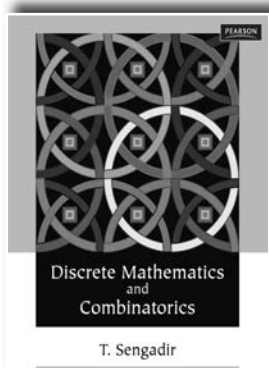
Discrete Mathematics

 **Rajendra Akerkar | Rupali Akerkar**

 **332 | © 2004**

ABOUT THE BOOK

The book intends to cover material required by readers for whom mathematics is just a tool, as well as provide a strong foundation for mathematics majors.



ISBN: 9788131714058

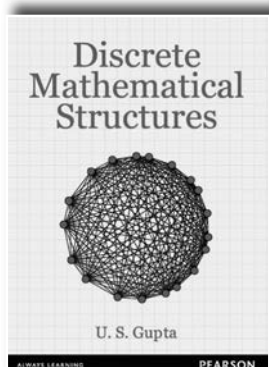
Discrete Mathematics and Combinatorics

 **T. Sengadir**

 **568 | © 2009**

ABOUT THE BOOK

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.



ISBN: 9789332521391

Discrete Mathematical Structures

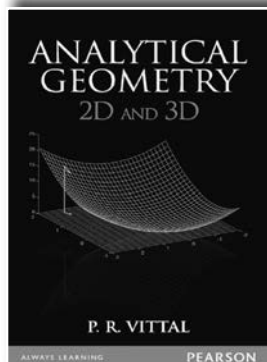
 **U.S Gupta**

 **576 | © 2014**

ABOUT THE BOOK

Discrete Mathematical Structures provides comprehensive, reasonably rigorous and simple explanation of the concepts with the help of numerous applications from computer science and engineering.

Analytical Geometry: 2D and 3D



 **P R Vittal**

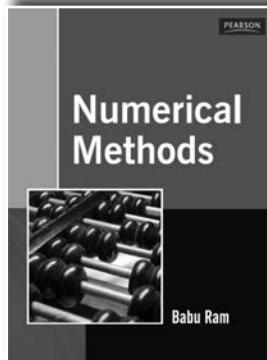
 **752 | © 2013**

ABOUT THE BOOK

Designed to meet the requirements of UG students, the book deals with the theoretical as well as the practical aspects of the subject. Equal emphasis has been given to both 2D as well as 3D geometry. The book follows a systematic approach with adequate examples for better understanding of the concepts.

ISBN: 9788131773604

Numerical Methods



ISBN: 9788131732212

to-understand treatment of concepts

- Most of the numerical methods have been described technically along with the convergence and error propagation

CONTENTS

1. Preliminaries
2. Non-Linear Equations
3. Linear Systems of Equations
4. Eigenvalues and Eigenvectors
5. Finite Differences and Interpolation
6. Curve Fitting
7. Numerical Differentiation
8. Numerical Quadrature
9. Difference Equations
10. Ordinary Differential Equations
11. Partial Differential Equations
12. Elements of C Language

ABOUT THE AUTHOR(S)

Babu Ram received his Ph.D. degree in Mathematics in 1973 from Kurukshetra University, Kurukshetra, India. He retired from Maharshi Dayanand University, Rohtak in 2006 as Professor of Mathematics and Dean, Faculty of Physical Sciences. Currently, he is Programme Director (MCA) at Manav Rachna International University, Faridabad (Haryana). He has published 42 research papers in Real and Functional Analysis in international journals of repute.

 **Babu Ram**

 520 | © 2010



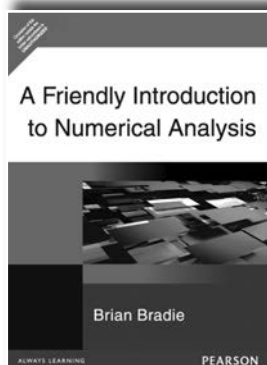
ABOUT THE BOOK

Numerical Methods is a mathematical tool used by engineers and mathematicians to do scientific calculations. It is used to find solutions to applied problems where ordinary analytical methods fail. This book is intended to serve for the needs of courses in *Numerical Methods* at the Bachelors' and Masters' levels at various universities.

FEATURES

- Concise and easy-
- 260 solved examples
- 160 practice problems
- Error analysis using various methods
- C programs of important numerical methods

A Friendly Introduction to Numerical Analysis



ISBN: 9788131709429

 **Brian Bradie**

 974 | © 2007



ABOUT THE BOOK

This student-friendly text develops concepts and techniques in a clear, concise, easy-to-read manner, followed by fully-worked examples. Application problems drawn from the literature of many different fields prepares students to use the techniques covered to solve a wide variety of practical problems.

FEATURES

- A theme of comparing/ contrasting numerical methods for accuracy, error, boundaries, and speed of convergence

- Chapters organized thematically around mathematical problems—Each chapter is devoted to a single type of problem. Within each chapter, the presentation begins with the simplest, most basic methods and progresses gradually to more advanced topics.
- Exercise Sets—Features roughly 1000 numbered exercises (many with multiple parts). An appropriate balance of theoretical, applications, and coding questions.

CONTENTS

- Getting Started.
- Root finding.
- Systems of Equations.
- Eigenvalues and Eigenvectors.
- Interpolation and Curve Fitting.
- Numerical Differentiation and Integration.
- Numerical Methods for Initial Value Problems of Ordinary Differential Equations.
- Second-Order One-Dimensional Two-Point Boundary Value Problems.
- Finite Difference Method for Elliptic Partial Differential Equations.
- Finite Difference Method for Parabolic Partial Differential Equations.
- Finite Difference Method for Hyperbolic Partial Differential Equations and the Convection-Diffusion Equation

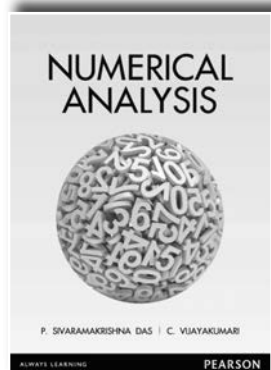
Numerical Analysis



Sivaramakrishna Das | Vijayakumari



768 | © 2014



ISBN: 9788131776469

ABOUT THE BOOK

A text book designed exclusively for the undergraduate students. With a complete presentation on theoretical and numerical derivations supported with rich pedagogy for practice. All chapters begin with theoretical presentation emphasizing the practical computation which addresses the accurate approximation. Subsequently, the book provides a detailed explanation on Errors in Numerical Computation, Algebraic and Transcendental Equations, Solution of Linear System of Equation, Curve Fitting, Initial value problem for ordinary differential equation, Boundary value problems of second order partial differential equation and Solution of difference

equation with constant coefficient.

FEATURES

- An exclusive coverage on Boundary value problems of second order partial differential equation and solution of difference equation with constant coefficient
- Over 200 line diagrams
- 400 solved problems
- 250 unsolved problems for practice.

CONTENTS

1. Errors in Numerical Computations
2. Solution of Algebraic and Transcendental Equations
3. Polynomial Interpolation
4. Inverse Interpolation
5. Numerical Differentiation
6. Numerical Integration
7. Curve Fitting
8. Initial value Problems for Ordinary Differential Equations
9. Boundary Value problems in Ordinary and Partial Differential Equation
10. Differential Equations

ABOUT THE AUTHOR(S)

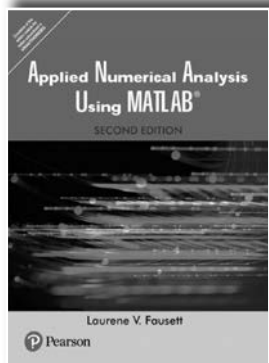
P. Sivaramakrishna Das started his career as Assistant Professor of Mathematics at Ramakrishna Mission Vivekananda College, Chennai, his alma mater, and retired as Professor and Head of the Department of Mathematics from the same college after an illustrious career spanning 36 years. Currently, he is Professor of Mathematics, Department of Science and Humanities, K.C.G. College of Technology, Chennai.

C. Vijayakumari began her career as Assistant Professor of Mathematics at Government Arts College for Women, Thanjavur, and has taught at various government arts and science colleges across Tamil Nadu before retiring as Professor of Mathematics, Queen Mary's College, Chennai, with 40 years of teaching experience behind her.

Applied Numerical Analysis Using MATLAB, 2/e

 **Laurene V. Fausett**

 **688** | © **2009**



ISBN: 9788131728536

ABOUT THE BOOK

This text is appropriate for undergraduate courses on numerical methods and numerical analysis found in engineering, mathematics & computer science departments. Each chapter uses introductory problems from specific applications. These easy-to-understand problems clarify for the reader the need for a particular mathematical technique. Numerical techniques are explained with an emphasis on why they work.

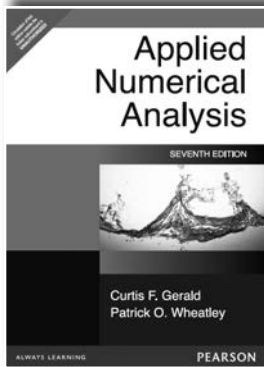
FEATURES

- Full-page overview for each chapter “ Includes two applications to introduce each chapter (except the first introductory chapter)
- End-of-chapter Beyond the Basics or Further Topics Introduce more advanced methods, often including those used by MATLAB and other professionally developed software packages.
- Chapter Wrap-Up “ Includes a summary of the formulas for the basic methods presented in the chapter, suggestions for further reading, and several types of exercises.
- Practice the Techniques problems “ Present fairly straightforward problems that encourage practice by hand or verification of simple MATLAB programs.

CONTENTS

1. Foundations
2. Functions of One Variable
3. Solving Linear Systems: Direct Methods
4. LU and QR Factorization
5. Eigenvalues and Eigenvectors
6. Solving Linear Systems: Iterative Methods
7. Nonlinear Functions of Several Variables
8. Interpolation
9. Approximation
10. Fourier Methods
11. Numerical Differentiation and Integration
12. Ordinary Differential Equations: Fundamentals
13. ODE: Systems, Stiffness, Stability
14. ODE: Boundary-Value Problems
15. Partial Differential Equations

Applied Numerical Analysis, 7/e



ISBN: 9788131717400

 Curtis F. Gerald

 624 | © 2007

ABOUT THE BOOK

The seventh edition of this classic text has retained the features that make it popular, while updating its treatment and inclusion of Computer Algebra Systems and Programming Languages. The exercise sets include additional challenging problems and projects which show practical applications of the material. Also, sections which discuss the use of computer algebra systems such as Maple®, Mathematica®, and MATLAB®, facilitate the integration of technology in the course. Furthermore, the text incorporates programming material in both FORTRAN and C. The breadth of topics, such as partial differential equations, systems of nonlinear equations, and matrix algebra, provide comprehensive and flexible, coverage of all aspects of numerical analysis.

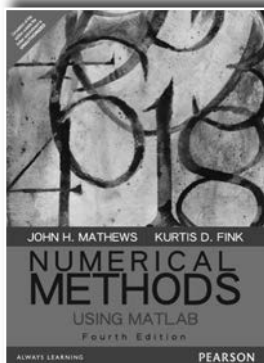
FEATURES

- Applied problems and applications emphasize real applications not detailed mathematical theorems
- Computer programs in either Fortran 90 or C are given at the conclusion of each chapter.
- Treats Linear systems before non-linear systems.
- The pace of topic presentation is appropriate for the audience.
- Excellent treatment of parallel processing.

CONTENTS

1. Solving Nonlinear Equations.
2. Solving Sets of Equations.
3. Interpolation and Curve Fitting.
4. Approximation of Functions.
5. Numerical Differentiation and Integration.
6. Numerical Solution of Ordinary Differential Equations.
7. Optimization.
8. Partial Differential Equations.
9. Finite Element Analysis.

Numerical Methods Using MATLAB, 4/e



ISBN: 9789332549357

 John H. Mathews | Kurtis K. Fink

 696 | © 2015

ABOUT THE BOOK

This book provides a fundamental introduction to numerical analysis for undergraduate students in the areas of mathematics, computer science, physical sciences, and engineering. Knowledge of calculus is assumed.

FEATURES

- NEW - Expanded emphasis on analysis of competing methods and issues of error.
- NEW - Rewritten chapter on numerical optimization.
- NEW - New topics for minimization of $z = f(x,y)$ are included.
- NEW - Projects for undergraduate library research experience have been added.

- Explicit use of the software MATLAB is offered.
- Each numerical method is presented in a self-contained format.
- Balance of theory and application.
- A variety of problems to sharpen students skills with extensive problem sets with a wide variety of activities.
- A wealth of tables and graphs which illustrates computer calculations in examples making the resulting numerical approximations easier to interpret.

CONTENTS

1. Preliminaries.
 2. The Solution of Nonlinear Equations $f(x) = 0$.
 3. The Solution of Linear Systems $AX = B$.
 4. Interpolation and Polynomial Approximation.
 5. Curve Fitting.
 6. Numerical Differentiation.
 7. Numerical Integration.
 8. Numerical Optimization.
 9. Solution of Differential Equations.
 10. Solution of Partial Differential Equations.
 11. Eigenvalues and Eigenvectors.
- Appendix: An Introduction to MATLAB.
Answers to Selected Exercises.

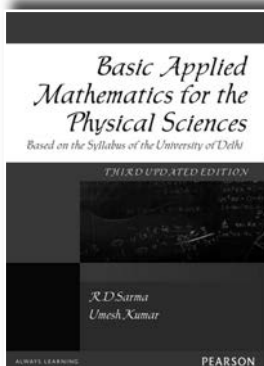
ABOUT THE AUTHOR(S)

John H. Mathews, *California State University, Fullerton*
Kurtis K. Fink, *Northwest Missouri State University*

Basic Applied Mathematics for the Physical Sciences, 3rd updated edition: Based on the syllabus of the University of Delhi, 3/e

 **R. D. Sarma | Umesh Kumar**

 **440 | © 2012**



ISBN: 9788131787823

ABOUT THE BOOK

Basic Applied Mathematics for the Physical Sciences offers an introductory course in mathematics for the undergraduate students of physical sciences and applied physical sciences in the University of Delhi. Well structured into three parts, this book presents an in-depth study of matrices, calculus and complex numbers. It provides a perfect blend of theoretical principles and numerical problems to help students enhance their understanding of mathematical concepts and their applications. A student-friendly approach and an easy-paced treatment of all relevant topics make this book useful for students of mathematics.

FEATURES

- Completely covers the semester-wise revised syllabus of the University of Delhi
- Includes the University of Delhi's solved question papers for the years 2010-11 and 2011-12
- Mathematical concepts explained using illustrative examples, diagrams and problems from various domains of science
- More than 350 solved examples interspersed in the text
- 700 practice problems
- Statistical, logarithmic and exponential tables provided, making the text completely self-contained

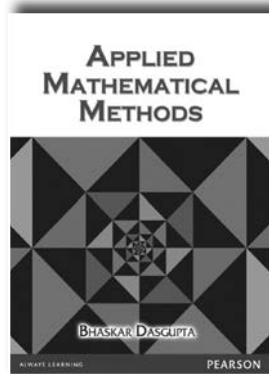
CONTENTS

1. Matrices
2. Vectors in R^2 and R^3
3. Linear Transformations
4. Eigenvalues and Eigenvectors
5. Sequences
6. Functions and Their Graphs
7. Differential Equations in Mathematical Modelling
8. Successive Differentiation
9. Polynomial Approximation of Functions
10. Functions of Two Variables
11. Geometry of Complex Numbers
12. De Moivre's Theorem

ABOUT THE AUTHOR(S)

R. D. Sarma is an associate professor in the Department of Mathematics at Rajdhani College, New Delhi. He has over 19 years of teaching experience at the undergraduate and postgraduate levels. He has published 28 research papers in various international journals and has worked on several research projects under the UGC and CSIR. His primary areas of interest are fuzzy set theory and topology. He has attended several international conferences and has been involved in guiding students for their Ph.D. degrees. He has also worked as an associate professor in mathematics in the Eritrea Institute of Technology, under the aegis of the Ministry of Education, Eritrea.

Umesh Kumar is an assistant professor in the Department of Mathematics at Rajdhani College, New Delhi. He is an active member of the Mathematical Association of India and a life member of the Indian Mathematical Society and Indian Science Congress Association. His area of research is topology. He was recently awarded 'The Worshipful Company of International Bankers' Prize' for securing the first position in M.Sc. (Financial Mathematics) from King's College, London. Presently, he is deputed as a faculty member in the Cluster Innovation Centre, University of Delhi.



ISBN: 9788131700686

Applied Mathematical Methods

 **Bhaskar Dasgupta**


 **524** | © **2006**



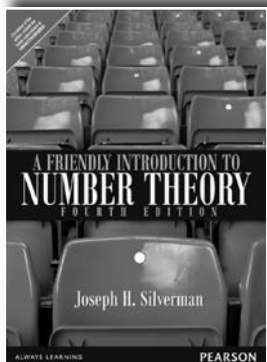
ABOUT THE BOOK

This book covers the material vital for research in today's world and can be covered in a regular semester course. It is the consolidation of the efforts of teaching the compulsory first semester post-graduate applied mathematics course at the Department of Mechanical Engineering at IIT Kanpur in two successive years.

A Friendly Introduction to Number Theory, 4/e

 **Joseph H. Silverman**

 480 | © 2014



ISBN: 9789332535237

ABOUT THE BOOK

A Friendly Introduction to Number Theory, Fourth Edition is designed to introduce students to the overall themes and methodology of mathematics through the detailed study of one particular facet—number theory. Starting with nothing more than basic high school algebra, students are gradually led to the point of actively performing mathematical research while getting a glimpse of current mathematical frontiers. The writing is appropriate for the undergraduate audience and includes many numerical examples, which are analyzed for patterns and used to make conjectures. Emphasis is on the methods used for proving theorems rather than on

specific results.

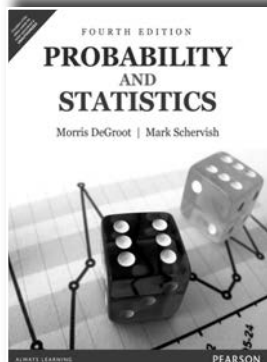
FEATURES

- 50 short chapters provide flexibility and options for instructors and students. A flowchart of chapter dependencies is included in this edition.
- Five basic steps are emphasized throughout the text to help readers develop a robust thought process:
 - Experimentation
 - Pattern recognition
 - Hypothesis formation
 - Hypothesis testing
 - Formal proof
- RSA cryptosystem, elliptic curves, and Fermat's Last Theorem are featured, showing the real-life applications of mathematics.

CONTENTS

1. What Is Number Theory?
2. Pythagorean Triples
3. Pythagorean Triples and the Unit Circle
4. Sums of Higher Powers and Fermat's Last Theorem
5. Divisibility and the Greatest Common Divisor
6. Linear Equations and the Greatest Common Divisor
7. Factorization and the Fundamental Theorem of Arithmetic
8. Congruences
9. Congruences, Powers, and Fermat's Little Theorem
10. Congruences, Powers, and Euler's Formula
11. Euler's Phi Function and the Chinese Remainder Theorem
12. Prime Numbers
13. Counting Primes
14. Mersenne Primes
15. Mersenne Primes and Perfect Numbers
16. Powers Modulo m and Successive Squaring
17. Computing k th Roots Modulo m
18. Powers, Roots, and "Unbreakable" Codes
19. Primality Testing and Carmichael Numbers
20. Squares Modulo p
21. Quadratic Reciprocity
22. Proof of Quadratic Reciprocity
23. Which Primes Are Sums of Two Squares?
24. Which Numbers Are Sums of Two Squares?
25. Euler's Phi Function and Sums of Divisors
26. Powers Modulo p and Primitive Roots
27. Primitive Roots and Indices
28. The Equation $X^4 + Y^4 = Z^4$
29. Square-Triangular Numbers Revisited
30. Pell's Equation
31. Diophantine Approximation
32. Diophantine Approximation and Pell's Equation
33. Number Theory and Imaginary Numbers
34. The Gaussian Integers and Unique Factorization
35. Irrational Numbers and Transcendental Numbers
36. Binomial Coefficients and Pascal's Triangle
37. Fibonacci's Rabbits and Linear Recurrence Sequences
38. Cubic Curves and Elliptic Curves
39. Elliptic Curves with Few Rational Points
40. Points on Elliptic Curves Modulo p
41. Torsion Collections Modulo p and Bad Primes
42. Defect Bounds and Modularity Patterns
43. Elliptic Curves and Fermat's Last Theorem

Probability and Statistics, 4/e



ISBN: 9789332573871

 **Morris H. DeGroot | Mark J. Schervish**

 2016 | © 2016

ABOUT THE BOOK

The revision of this well-respected text presents a balanced approach of the classical and Bayesian methods and now includes a chapter on simulation (including Markov chain Monte Carlo and the Bootstrap), coverage of residual analysis in linear models, and many examples using real data.

Probability & Statistics, Fourth Edition, was written for a one- or two-semester probability and statistics course. This course is offered primarily at four-year institutions and taken mostly by sophomore and junior level students majoring in mathematics or statistics. Calculus is a prerequisite, and a familiarity with the concepts and elementary properties of vectors and matrices is a plus.

FEATURES

- Brief introductions in each technical section give readers a hint about what they are going to encounter, while summaries list the most important ideas.
- In addition to examples using current data, some elementary concepts of probability are illustrated by famous examples such as the birthday problem, the tennis tournament problem, the matching problem, and the collector's problem.
- Special features include sections on Markov chains, the gambler's ruin problem, and utility and preferences among gamblers. These topics are presented in an elementary fashion and can be omitted without loss of continuity.
- Optional sections of the book are indicated by an asterisk in the Table of Contents.
- Chapters 1—5 are devoted to probability and can serve as the text for a one-semester course on probability. Independence is now introduced after conditional probability.
- Chapters 6—10 are devoted to statistical inference. Both classical and Bayesian statistical methods are developed in an integrated presentation which will be useful to students when applying the concepts to the real world.

CONTENTS

1. Introduction to Probability
2. Conditional Probability
3. Random Variables and Distributions
4. Expectation
5. Special Distributions
6. Large Random Samples
7. Estimation
8. Sampling Distributions of Estimators
9. Testing Hypotheses
10. Categorical Data and Nonparametric Methods
11. Linear Statistical Models

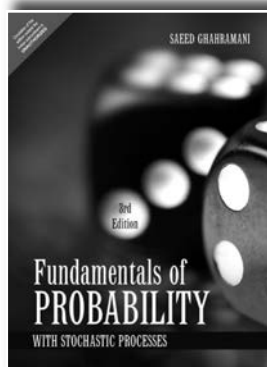
ABOUT THE AUTHOR(S)

Morris H. DeGroot, Mark J. Schervish

Fundamentals of Probability, with Stochastic Processes, 3/e

 Saeed Ghahramani

 640 | © 2014



ISBN: 9789332535107

ABOUT THE BOOK

Probability is presented in a very clear way in this text: through interesting and instructive examples and exercises that motivate the theory, definitions, theorems, and methodology. Due to its unique organization, this text has also been successfully used in teaching courses in discrete probability.

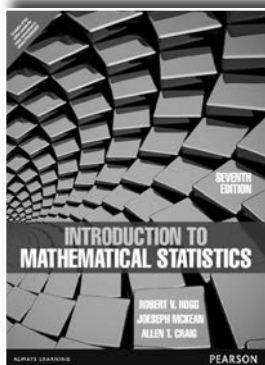
FEATURES

- NEW - An official reference for The American Actuarial Society.
- NEW - Chapter on Stochastic Processes Covers more in-depth material on Poisson processes, presents the basics of Markov chains, continuous-time Markov chains, and Brownian Motion. This text is now the most comprehensive available in probability.
- NEW - Applications of probability and stochastic processes in finance Includes some practical, meaningful, non-trivial, and relevant applications of probability and stochastic processes in finance, economics, and actuarial sciences.
- NEW - Comprehensive new section on applications to Genetics Covers basic concepts of genetics including many important examples throughout the book.
- NEW - New section on Survival Analysis and Hazard Functions.
- NEW - Fine-tuned for accuracy Praised for being very accurate and virtually error free.
- NEW - More explanations and clarifying comments.
- NEW - 276 new exercises and examples Adds new application problems.
- NEW - More insightful and better solutions.
- Historical roots and applications of many of the theorems and definitions.
- Simple probabilistic arguments Given with the usual analytic proofs.

CONTENTS

1. Axioms of Probability.
 2. Combinatorial Methods.
 3. Conditional Probability and Independence.
 4. Distribution Functions and Discrete Random Variables.
 5. Special Discrete Distributions.
 6. Continuous Random Variables.
 7. Special Continuous Distributions.
 8. Bivariate Distributions.
 9. Multivariate Distributions.
 10. More Expectations and Variances.
 11. Sums of Independent Random Variables and Limit Theorems.
 12. Stochastic Processes.
 13. Simulation.
- Answers to Odd-Numbered Exercises.

Introduction to Mathematical Statistics, 7/e



ISBN: 9789332519114

 Robert V. Hogg | Allen T. Craig | Joseph W. McKean

 656 | © 2014

ABOUT THE BOOK

Introduction to Mathematical Statistics, Seventh Edition, provides students with a comprehensive introduction to mathematical statistics. Continuing its proven approach, the Seventh Edition has been updated with new examples, exercises, and content for an even stronger presentation of the material.

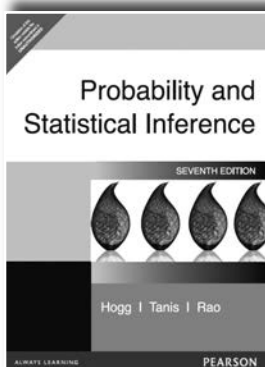
FEATURES

- Classical statistical inference procedures in estimation and testing are thoroughly covered.
- In-depth treatment of sufficiency and testing theory includes uniformly most powerful tests and likelihood ratio tests.
- Numerous illustrative examples and exercises enhance students' comprehension and retention as they progress through the material.
- Definitions, equations, and theorems are set in bold type help students study more effectively.
- The text's flexible organization makes it ideal for use with a range of mathematical statistics courses.

CONTENTS

- | | | |
|-------------------------------------------|-----------------------------------------|-------------------------------------------|
| 1. Probability and Distributions | 6. Maximum Likelihood Methods | Appendix A. Mathematical Comments |
| 2. Multivariate Distributions | 7. Sufficiency | Appendix B. R-Functions |
| 3. Some Special Distributions | 8. Optimal Tests of Hypotheses | Appendix C. Tables of Distributions |
| 4. Some Elementary Statistical Inferences | 9. Inferences about Normal Models | Appendix D. List of Common Distributions |
| 5. Consistency and Limiting Distributions | 10. Nonparametric and Robust Statistics | Appendix E. Answers to Selected Exercises |

Probability and Statistical Inference, 7/e



ISBN: 9788177585537

 Robert V. Hogg | Elliot A. Tanis | M. Jagan Mohan Rao

 752 | © 2006

ABOUT THE BOOK

The book *Probability and Statistical Inference* emphasizes the existence of variation in almost every process, and how the study of probability and statistics helps us understand this variability. Designed for students with a background in calculus, it reinforces basic mathematical concepts with numerous real-world examples and applications to illustrate the relevance of key concepts.

FEATURES

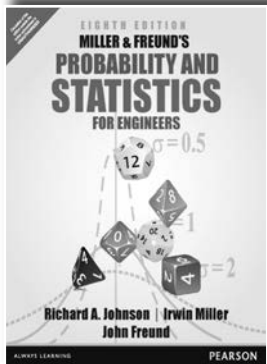
- Student-friendly approach “Reinforces basic mathematical concepts, while not requiring extensive knowledge of math beyond calculus.
- Integration of computer-based data and applications
- Application-oriented content “Features more than 100 new real-world scenarios as exercises and examples, with applications in the areas of biology, economics, health, sociology, and sports.

- Updated material throughout “ Offers a brief history of probability in the chapter on normal distribution

CONTENTS

- | | | |
|-----------------------------|----------------------------|------------------------------------|
| 1. Prologue | 5. The Normal Distribution | 9. Tests of Statistical Hypotheses |
| 2. Probability | 6. Bivariate Distributions | 10. Theory of Statistical Tests |
| 3. Discrete Distributions | 7. Centerpiece | |
| 4. Continuous Distributions | 8. Estimation | |

Miller & Freund's Probability and Statistics for Engineers, 8/e



ISBN: 9789332550414



Richard A. Johnson | Irwin Miller | John Freund



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ABOUT THE BOOK

This text is rich in exercises and examples, and explores both elementary probability and basic statistics, with an emphasis on engineering and science applications. Much of the data have been collected from the author's own consulting experience and from discussions with scientists and engineers about the use of statistics in their fields. In later chapters, the text emphasizes designed experiments, especially two-level factorial design.

FEATURES

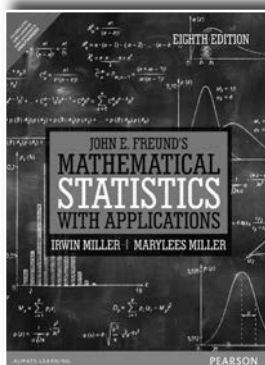
- Clear, concise presentation helps students quickly gain an understanding of the concepts.
- Rich problem sets give students the practice they need to learn the material.
- Do's and Don'ts at the end of each chapter help students to apply statistics correctly to avoid misuses.
- Computer exercises for MINITAB® help students learn and become familiar with this software.
- Many data sets are drawn from author Richard Johnson's own consulting activities as well as discussions with scientists and engineers about their statistical problems. This helps illustrate the statistical methods and reasoning required in order to draw generalizations from data collected in actual experiments.
- Content highlights:
 - Case studies in the first two chapters illustrate the power of even simple statistical methods to suggest changes that make major improvements in production processes.
 - Graphs of the sampling distribution show the critical region and P value, and accompany the examples of testing hypotheses.
 - Summary tables of testing procedures provide a convenient reference for students.
 - Solid treatment of confidence interval techniques and hypothesis testing procedures, which clearly and consistently delineates the steps for hypothesis testing in each application.
 - Clear, current coverage of two-level factorial design. To explore interactions, engineers have to know about experiments where more than one variable has been changed at the same time in design.
 - A full chapter on modern ideas of quality improvement provides up-to-date coverage of this popular significant trend in the field.

CONTENTS

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| 1. Introduction | 7. Inferences Concerning a Mean | 12. Analysis of Variance |
| 2. Organization and Description of Data | 8. Comparing Two Treatments | 13. Factorial Experimentation |
| 3. Probability | 9. Inferences Concerning Variances | 14. Nonparametric Tests |
| 4. Probability Distributions | 10. Inferences Concerning Proportions | 15. The Statistical Content of Quality-Improvement Programs |
| 5. Probability Densities | 11. Regression Analysis | 16. Application to Reliability and Life Testing |
| 6. Sampling Distributions | | |

ABOUT THE AUTHOR(S)

Richard Johnson is the co-author of seven statistics texts and monographs, including Probability and Statistics for Engineers and Applied Multivariate Statistical Analysis. He was the founding editor of Statistics and Probability Letters and served as editor for 25 years. Besides many years of experience in teaching all levels of statistics courses at the University of Wisconsin, he has published more than 120 technical papers concentrating in the areas of reliability and life testing, multivariate analysis, large sample theory, and applications to engineering. Johnson has presented talks on his research in 23 foreign countries. He is an elected member of the International Statistical Institute, a Fellow of the American Statistical Association, a Fellow of the Institute of Mathematical Statistics, and a Fellow of the Royal Statistical Society.



ISBN: 9789332519053

John E. Freund's Mathematical Statistics with Applications, 8/e

 Irwin Miller | Marylees Miller

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ABOUT THE BOOK

John E. Freund's *Mathematical Statistics with Applications*, Eighth Edition, provides a calculus-based introduction to the theory and application of statistics, based on comprehensive coverage that reflects the latest in statistical thinking, the teaching of statistics, and current practices.

This text is appropriate for a two-semester or three-quarter calculus-based course in Introduction to Mathematical Statistics. It can also be used for a single-semester course emphasizing probability, probability distributions and densities, sampling, and classical statistical inference

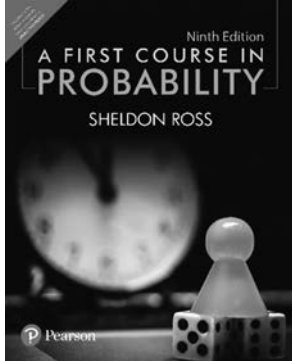
FEATURES

- “The Theory in Practice” sections at the end of every chapter give students the chance to apply the methods they've learned.
- More than 1,200 exercises offer a wide variety to choose from in creating assignments, tests, and class work. Many of these exercises offer the opportunity to use technology so that students can understand the role of computers in factoring and analyzing statistical data.
- Comprehensive coverage of statistical theories students have appreciated for generations.
- Comprehensive appendices summarize the properties of the special probability distributions and density functions, making this text an invaluable reference.

CONTENTS

1. Introduction
2. Probability
3. Probability Distributions and Probability Densities
4. Mathematical Expectation
5. Special Probability Distributions
6. Special Probability Densities
7. Functions of Random Variables
8. Sampling Distributions
9. Decision Theory
10. Point Estimation
11. Interval Estimation
12. Hypothesis Testing
13. Tests of Hypotheses Involving Means, Variances, and Proportions
14. Regression and Correlation
15. Appendix: Sums and Products
16. Appendix: Special Probability Distributions
17. Appendix: Special Probability Densities
18. Statistical tables

A First Course in Probability, 9/e



ISBN: 9789353065607

 Sheldon Ross

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ABOUT THE BOOK

A First Course in Probability, 9e is a text that endeavors to present not only the mathematics of probability theory, but also, through numerous examples, the many diverse applications of the subject. Aside from a multitude of changes made to increase the clarity of the text, the new edition includes many new and updated problems, exercises, and text material chosen both for inherent interest and for their use in building student intuition about probability.

FEATURES

- **Clear and intuitive explanations** supported with variety of diverse examples and three sets of exercises given at the end of each chapter, that include **Problems, Theoretical Exercises, and Self-Test Problems and Exercises**. The Self-Test Problems and Exercises include complete solutions in the appendix, allowing students to test their comprehension and study for exams.
- **Excellent Pedagogy**—Over 480 exercises, 240 Theoretical exercises, 190 Self-text problems and exercises

NEW TO THIS EDITION

- **Stream-lined exposition** focuses on improved clarity and deeper understanding.
- **New examples and exercises** added throughout this edition pique students' interest while building their understanding of probability.
- **New Examples 3h and 4k**, found in Chapter 3, engage students by discussing estimating the fraction of twin pairs that are identical and with analyzing serve and rally games.
-

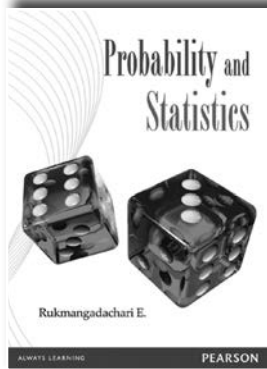
CONTENTS

1. Combinatorial Analysis
 2. Axioms of Probability
 3. Conditional Probability and Independence
 4. Random Variables
 5. Continuous Random Variables
 6. Jointly Distributed Random Variables
 7. Properties of Expectation
 8. Limit Theorems
 9. Additional Topics
 10. Simulation
- Answers to Selected Problems
Solutions to Self-Test Problems and Exercises

ABOUT THE AUTHOR

Sheldon M. Ross is a professor in the Department of Industrial Engineering and Operations Research at the University of Southern California. He received his Ph.D. in statistics at Stanford University in 1968. He has published many technical articles and textbooks in the areas of statistics and applied probability. Among his texts are *A First Course in Probability*, *Introduction to Probability Models*, *Stochastic Processes*, and *Introductory Statistics*.

Probability and Statistics



ISBN: 9788131761366

 **E. Rukmangadachari**

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ABOUT THE BOOK

This book is designed for engineering students studying the core paper on probability and statistics during their second or third years. It includes detailed explanation of theory with numerous examples and exercises, as well as relevant references to engineering applications. Each chapter also has numerous objective type questions, and answers and hints are provided for all the exercise problems and objective type questions.

FEATURES

- Detailed examination of special probability distributions
- A separate chapter on estimation theory
- Detailed examination of regression and correlation analysis
- A separate chapter on queuing theory

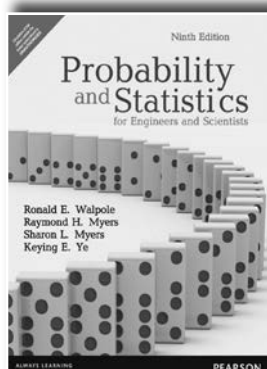
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1. Probability
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4. Sampling Distributions
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6. Inferences Concerning Means and Proportions
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8. Curve Fitting: Regression and Correlation Analysis
9. Queueing Theory


ABOUT THE AUTHOR(S)

E Rukmangadachari is former head of Computer Science and Engineering as well as Humanities and Sciences at Malla Reddy Engineering College, Secunderabad. He is an MA from Osmania University, and an M.PHIL. and Ph.D. degree holder from Sri Venkateswara University, Thirupathi.

Probability and Statistics for Engineers and Scientists, 9/e



ISBN: 9789332519084

 **Ronald E. Walpole** | **Raymond H. Myers** | **Sharon L. Myers** | **Keying Ye**

 **950** | © **2014**



ABOUT THE BOOK

This classic text provides a rigorous introduction to basic probability theory and statistical inference, with a unique balance between theory and methodology. Interesting, relevant applications use real data from actual studies, showing how the concepts and methods can be used to solve problems in the field. This revision focuses on improved clarity and deeper understanding.



FEATURES

- The balance between theory and applications offers mathematical support to enhance coverage when necessary, giving engineers and scientists the proper mathematical context for statistical tools and methods.
- Mathematical level: this text assumes one semester of differential and integral calculus as a prerequisite.
 - Calculus is confined to elementary probability theory and probability distributions (Chapters 2-7).
 - Matrix algebra is used modestly in coverage of linear regression material (Chapters 11-12).
 - Linear algebra and the use of matrices are applied in Chapters 11-15, where treatment of linear regression and analysis of variance is covered.
- Compelling exercise sets challenge students to use the concepts to solve problems that occur in many real-life scientific and engineering situations. Many exercises contain real data from studies in the fields of biomedical, bioengineering, business, computing, etc.
- Real-life applications of the Poisson, binomial, and hypergeometric distributions generate student interest using topics such as flaws in manufactured copper wire, highway potholes, hospital patient traffic, airport luggage screening, and homeland security.

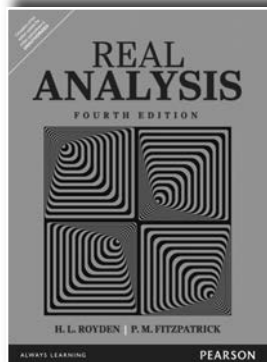
CONTENTS

1. Introduction to Statistics and Data Analysis
2. Probability
3. Random Variables and Probability Distributions
4. Mathematical Expectation
5. Some Discrete Probability Distributions
6. Some Continuous Probability Distributions
7. Functions of Random Variables (Optional)
8. Sampling Distributions and More Graphical Tools
9. One- and Two-Sample Estimation Problems
10. One- and Two-Sample Tests of Hypotheses
11. Simple Linear Regression and Correlation
12. Multiple Linear Regression and Certain Nonlinear Regression Models
13. One-Factor Experiments: General
14. Factorial Experiments (Two or More Factors)
15. 2k Factorial Experiments and Fractions
16. Nonparametric Statistics
17. Statistical Quality Control
 - A. Statistical Tables and Proofs
 - B. Answers to Odd-Numbered Non-Review Exercises

ABOUT THE AUTHOR(S)

- Ronald E. Walpole
 - Raymond H. Myers, Virginia Polytechnic Institute
 - Sharon L. Myers
 - Keying E. Ye, Virginia Polytechnic Institute & State University
-

Real Analysis, 4/e



ISBN: 9789332551589

 Halsey Royden | Patrick Fitzpatrick

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ABOUT THE BOOK

Real Analysis, Fourth Edition, covers the basic material that every graduate student should know in the classical theory of functions of a real variable, measure and integration theory, and some of the more important and elementary topics in general topology and normed linear space theory. This text assumes a general background in undergraduate mathematics and familiarity with the material covered in an undergraduate course on the fundamental concepts of analysis. Patrick Fitzpatrick of the University of Maryland—College Park spearheaded this revision of Halsey Royden’s classic text

FEATURES

- Independent, modular chapters give instructors the freedom to arrange the material into a course according that suits their needs. A chart in the text gives the essential dependencies.
- Content is divided into three parts:
 - Part 1: Classical theory of functions, including the classical Banach spaces
 - Part 2: General topology and the theory of general Banach spaces
 - Part 3: Abstract treatment of measure and integration
- Throughout the text, an understanding of the linkages between the three parts is fostered. The expanded collection of problems range from those that confirm understanding of basic results and ideas to those that are quite challenging; many problems foreshadow future developments.

CONTENTS

Part I: Lebesgue Integration For Functions Of A Single Real Variable

- | | |
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| 1. The Real Numbers: Sets, Sequences and Functions | 5. Lebesgue Integration: Further Topics |
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| 4. Lebesgue Integration | 8. The Spaces: Duality and Weak Convergence |

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- | | |
|----------------------------------------------------|-------------------------------------------------------|
| 9. Metric Spaces: General Properties | 13. Continuous Linear Operators Between Banach Spaces |
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| 12. Topological Spaces: Three Fundamental Theorems | 16. Continuous Linear Operators on Hilbert Spaces |

Part III: Measure And Integration: General Theory

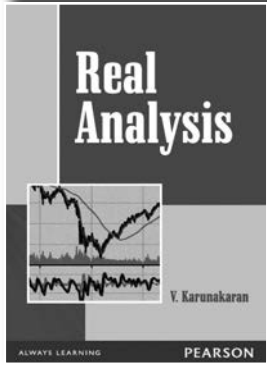
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|----------------------------------------------------------------|----------------------------------------------------------------|
| 17. General Measure Spaces: Their Properties and Construction | 19. General Spaces: Completeness, Duality and Weak Convergence |
| 18. Integration Over General Measure Spaces | 20. The Construction of Particular Measures |
| 19. General Spaces: Completeness, Duality and Weak Convergence | 21. Measure and Topology |
| | 22. Invariant Measures |



Real Analysis

 V. Karunakaran

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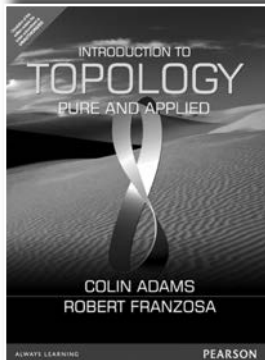


ISBN: 9788131757987

ABOUT THE BOOK

This text book is designed for an undergraduate course on mathematics. It covers the basic material that every graduate student should know in the classical theory of functions of real variables, measures, limits and continuity. This text book offers readability, practicality and flexibility. It presents fundamental theorems and ideas from a practical viewpoint, showing students the motivation behind mathematics and enabling them to construct their own proofs.

Introduction to Topology



ISBN: 9788131726921

 **Colin Adams | Robert Franzosa**

 **512 | © 2009**

ABOUT THE BOOK

This book introduces topology as an important and fascinating mathematics discipline. Students learn first the basics of point-set topology, which is enhanced by the real-world application of these concepts to science, economics, and engineering as well as other areas of mathematics. The second half of the book focuses on topics like knots, robotics, and graphs. The text is written in an accessible way for a range of undergraduates to understand the usefulness and importance of the application of topology to other fields.

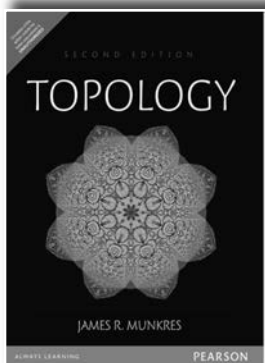
FEATURES

- Theoretical and applied approach- the authors focus on the basic concepts of
- Intuitive and accessibly written text
- Rigorous presentation of the mathematics with intuitive descriptions and discussions to increase student understand.
- Examples of real world application keep students engrossed in the material
- Numerous figures allow students to visualize and understand the material presented

CONTENTS

- | | |
|--------------------------------------------|-------------------------------------------|
| 1. Introduction | 9. Dynamical Systems and Chaos |
| 2. Topological Spaces | 10. Homotopy and Degree Theory |
| 3. Interior, Closure, and Boundary | 11. Fixed Point Theorems and Applications |
| 4. Creating New Topological Spaces | 12. Embeddings |
| 5. Continuous Functions and Homeomorphisms | 13. Knots |
| 6. Metric Spaces | 14. Graphs and Topology |
| 7. Connectedness | 15. Manifolds and Cosmology |
| 8. Compactness | |

Topology , 2/e



ISBN: 9789332549531

 **James Munkres**

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ABOUT THE BOOK

For a senior undergraduate or first year graduate-level course in Introduction to Topology. Appropriate for a one-semester course on both general and algebraic topology or separate courses treating each topic separately.

This text is designed to provide instructors with a convenient single text resource for bridging between general and algebraic topology courses. Two separate, distinct sections (one on general, point set topology, the other on algebraic topology) are each suitable for a one-semester course and are based around the same set of basic, core topics. Optional, independent topics and applications can be studied

and developed in depth depending on course needs and preferences.

FEATURES

- NEW - Greatly expanded, full-semester coverage of algebraic topology—Extensive treatment of the fundamental group and covering spaces. What follows is a wealth of applications—to the topology of the plane (including the Jordan curve theorem), to the classification of compact surfaces, and to the classification of covering spaces. A final chapter provides an application to group theory itself.
- Follows the present-day trend in the teaching of topology which explores the subject much more extensively with one semester devoted to general topology and a second to algebraic topology.
- Advanced topics—Such as metrization and imbedding theorems, function spaces, and dimension theory are covered after connectedness and compactness.
- Order of topics proceeds naturally from the familiar to the unfamiliar—Begins with the familiar set theory, moves on to a thorough and careful treatment of topological spaces, then explores connectedness and compactness (with their many ties to calculus and analysis), and then branches out to the new and different topics mentioned above.
- Carefully guides students through transitions to more advanced topics being careful not to overwhelm them. Motivates students to continue into more challenging areas.
- One-or two-semester coverage—Provides separate, distinct sections on general topology and algebraic topology.
- Each of the text's two parts is suitable for a one-semester course, giving instructors a convenient single text resource for bridging between the courses. The text can also be used where algebraic topology is studied only briefly at the end of a single-semester course.
- Many examples and figures—Exploits six basic counterexamples repeatedly.
- Avoids overemphasis on “weird counterexamples.”
- Exercises—Varied in difficulty from the routine to the challenging. Supplementary exercises at the end of several chapters explore additional topics.
- Deepen students' understanding of concepts and theorems just presented rather than simply test comprehension. The supplementary exercises can be used by students as a foundation for an independent research project or paper.

CONTENTS

I. General Topology.

1. Set Theory and Logic.
2. Topological Spaces and Continuous Functions.
3. Connectedness and Compactness.
4. Countability and Separation Axioms.

II. Algebraic Topology.

9. The Fundamental Group.
10. Separation Theorems in the Plane.
11. The Seifert-van Kampen Theorem.
5. The Tychonoff Theorem.
6. Metrization Theorems and Paracompactness.
7. Complete Metric Spaces and Function Spaces.
8. Baire Spaces and Dimension Theory.
12. Classification of Covering Spaces.
13. Classification of Surfaces.



AUTHOR INDEX

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