



AMERICAN MATHEMATICAL SOCIETY



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## TEXTBOOKS FROM THE AMS

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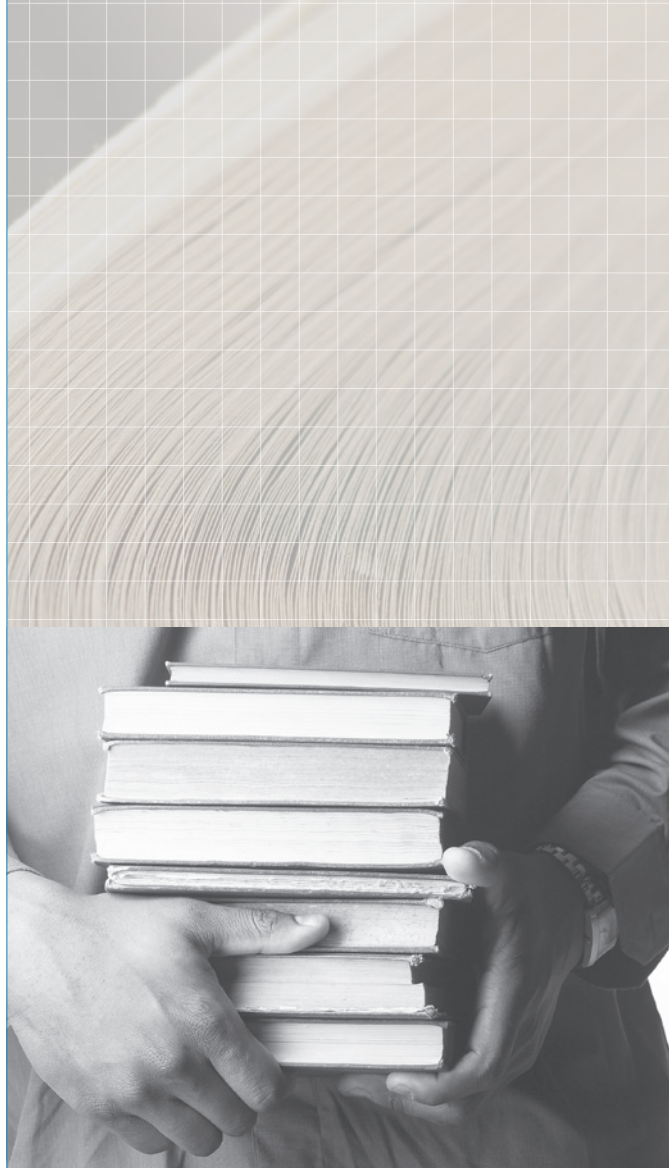
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## ALGEBRA AND ALGEBRAIC GEOMETRY

### GRADUATE

#### Algebra: Chapter 0

Paolo Aluffi, *Florida State University, Tallahassee, FL*

*Algebra: Chapter 0* is a self-contained introduction to the main topics of algebra, suitable for a first sequence on the subject at the beginning graduate or upper undergraduate level. The primary distinguishing feature of this book, compared to standard textbooks in algebra, is the early introduction of categories, used as a unifying theme in the presentation of the main topics.

**Graduate Studies in Mathematics, Volume 104**

2009; approximately 728 pp.; hardcover; ISBN: 978-0-8218-4781-7; List US\$89; AMS members US\$71; Order code: GSM/104

### UNDERGRAD / GRAD

#### Linear Algebra in Action

Harry Dym, *Weizmann Institute of Science, Rehovot, Israel*

*It is a wonderful book: very accessible and rigorous [at] the same time, containing basic and not-so-basic facts, discussing many (sometimes unexpected) applications...*

—MAA Reviews

**Graduate Studies in Mathematics, Volume 78**

2007; 545 pp.; hardcover; ISBN: 978-0-8218-3813-6; List US\$79; AMS members US\$63; Order code: GSM/78

### GRADUATE

#### Algebra

##### A Graduate Course

I. Martin Isaacs, *University of Wisconsin, Madison, WI*

*This is a book to be warmly welcomed. The presentation throughout is a model of clarity, and the proofs are precise and complete. The careful reader will learn from it not only much mathematics but also (and more importantly) how to think mathematically.*

—Mathematical Reviews

**Graduate Studies in Mathematics, Volume 100**

1994; 516 pp.; hardcover; ISBN: 978-0-8218-4799-2; List US\$79; AMS members US\$63; Order code: GSM/100

### GRADUATE

#### Finite Group Theory

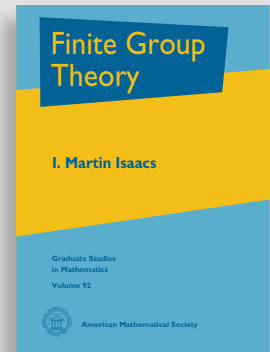
I. Martin Isaacs, *University of Wisconsin, Madison, WI*

*As might be expected from a book by Isaacs, although the topics are familiar, almost every chapter contains unexpected gems not to be found in most basic textbooks. ... Surely many readers will be inspired by this book to continue their study of the fascinating field of finite group theory.*

—Mathematical Reviews

**Graduate Studies in Mathematics, Volume 92**

2008; 350 pp.; hardcover; ISBN: 978-0-8218-4344-4; List US\$59; AMS members US\$47; Order code: GSM/92



### UNDERGRAD / GRAD

#### A (Terse) Introduction to Linear Algebra

Yitzhak Katznelson, *Stanford University, CA*, and  
Yonatan R. Katznelson, *University of California, Santa Cruz, CA*

*The book is written in an elegant, condensed way. It contains many exercises, mostly of theoretical character. The main advantage (in particular for teachers and talented students) is that basic ideas are carefully isolated and presented in a simple, minimal and understandable way.*

—European Mathematical Society Newsletter

**Student Mathematical Library, Volume 44**

2008; 215 pp.; softcover; ISBN: 978-0-8218-4419-9; List US\$35; AMS members US\$28; Order code: STML/44

### UNDERGRAD / GRAD

#### Concepts in Abstract Algebra

Charles Lanski, *University of Southern California, Los Angeles, CA*

The style and structure of *Concepts in Abstract Algebra* are designed to help students learn the core concepts and associated techniques in algebra deeply and well.

Available exclusively from the AMS.

**Brooks/Cole: Cengage Learning, Volume 14**

2005; 550 pp.; hardcover; ISBN: 978-0-534-42323-0; List US\$89; AMS members US\$71; Order code: CENGAGE/14

### UNDERGRAD / GRAD

#### Algebra

##### Third Edition

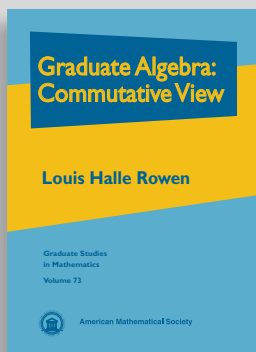
Saunders Mac Lane and Garrett Birkhoff

*The book is clearly written, beautifully organized, and has an excellent and wide-ranging supply of exercises ... contains ample material for a full-year course on modern algebra at the undergraduate level.*

—Mathematical Reviews

**AMS Chelsea Publishing, Volume 330**

1988; 626 pp.; hardcover; ISBN: 978-0-8218-1646-2; List US\$62; AMS members US\$56; Order code: CHEL/330.H



## ◆ GRADUATE

**Graduate Algebra: Commutative View**

Louis Halle Rowen, *Bar-Ilan University, Ramat Gan, Israel*

*The book is consistently organized in several layers (main text, supplements, appendices), which makes it a valuable source for readers of various levels, from graduate students to researchers.*

—*European Mathematical Society Newsletter*

**Graduate Studies in Mathematics, Volume 73**

2006; 438 pp.; hardcover; ISBN: 978-0-8218-0570-1; List US\$65; AMS members US\$52; Order code: GSM/73

## ◆ GRADUATE

**Algebraic Curves and Riemann Surfaces**

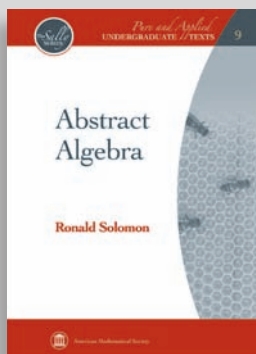
Rick Miranda, *Colorado State University, Ft. Collins, CO*

*One of the best introductory textbooks on the theory of algebraic curves and Riemann surfaces ... very well organized ... plenty of examples ... strongly recommend this book as a textbook for an introduction to algebraic curves and Riemann surfaces ... One of my students said that this is one of a very few books in algebraic geometry that he can read and understand.*

—*Pawel Gajer, Johns Hopkins University*

**Graduate Studies in Mathematics, Volume 5**

1995; 390 pp.; hardcover; ISBN: 978-0-8218-0268-7; List US\$54; AMS members US\$43; Order code: GSM/5



## ◆ UNDERGRADUATE

**Abstract Algebra**

Ronald Solomon, *Ohio State University, Columbus, OH*

Everywhere in the text, the goal is to make clear the links connecting abstract algebra to Euclidean geometry, high school algebra, and trigonometry.

**Pure and Applied Undergraduate Texts, Volume 9**

2003; 227 pp.; hardcover; ISBN: 978-0-8218-4795-4; List US\$62; AMS members US\$50; Order code: AMSTEXT/9

## ◆ UNDERGRAD / GRAD

**Topics in Applied Abstract Algebra**

S. R. Nagpaul and S. K. Jain, *Ohio University, Athens, OH*

*I prefer this book over the competition because it is most rigorous and has a sounder mathematical basis.*

—*Edward Formanek, Pennsylvania State University*

Available exclusively from the AMS.

**Brooks/Cole: Cengage Learning, Volume 15**

2005; 336 pp.; hardcover; ISBN: 978-0-534-41911-0; List US\$69; AMS members US\$55; Order code: CENGAGE/15

## ◆ UNDERGRADUATE

**Applied Linear Algebra****The Decoupling Principle, Second Edition**

Lorenzo Sadun, *University of Texas, Austin, TX*

Linear algebra permeates mathematics, as well as physics and engineering. In this text for junior and senior undergraduates, Sadun treats diagonalization as a central tool in solving complicated problems in these subjects by reducing coupled linear evolution problems to a sequence of simpler decoupled problems.

2008; 371 pp.; hardcover; ISBN: 978-0-8218-4441-0; List US\$59; AMS members US\$47; Order code: MBK/50

## ◆ UNDERGRAD / GRAD

**A Course in Algebra**

E. B. Vinberg,  
*Moscow State University, Russia*

*This is a masterly textbook on basic algebra. It is, at the same time, demanding and down-to-earth, challenging and user-friendly, abstract and concrete, concise and comprehensible, and above all extremely educating, inspiring and enlightening.*

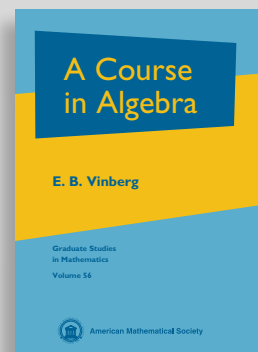
—*Zentralblatt MATH*

**Graduate Studies in Mathematics, Volume 56**

2003; 511 pp.; hardcover; ISBN: 978-0-8218-3318-6; List US\$89; AMS members US\$71; Order code: GSM/56

**Softcover Edition**

2003; 511 pp.; softcover; ISBN: 978-0-8218-3413-8; List US\$59; AMS members US\$47; Order code: GSM/56.S



## ANALYSIS

## ◆ GRADUATE

**A Course in Approximation Theory**

Ward Cheney, *University of Texas at Austin, TX,*  
and Will Light

This textbook is designed for graduate students in mathematics, physics, engineering, and computer science. Its purpose is to guide the reader in exploring contemporary approximation theory.

**Graduate Studies in Mathematics, Volume 101**

2000; 359 pp.; hardcover; ISBN: 978-0-8218-4798-5; List US\$69; AMS members US\$55; Order code: GSM/101



## ◆ GRADUATE

## Fourier Analysis

Javier Duoandikoetxea, *Universidad del País Vasco/Euskal Herriko Unibertsitatea, Bilbao, Spain*

*This is a great introductory book to Fourier analysis on Euclidean spaces and can serve as a textbook in an introductory graduate course on the subject ... The chapters on the Hardy-Littlewood maximal function and the Hilbert transform are extremely well written ... this is a great book and is highly recommended as an introductory textbook to Fourier analysis. The students will have a lot to benefit from in the simple and quick presentation of the book.*

—*Mathematical Reviews*

Graduate Studies in Mathematics, Volume 29

2001; 222 pp.; hardcover; ISBN: 978-0-8218-2172-5; List US\$39; AMS members US\$31; Order code: GSM/29

## ◆ GRADUATE

## Functional Analysis

### An Introduction

Yuli Eidelman and Vitali Milman, *Tel Aviv University, Israel, and Antonis Tsolomitis, University of the Aegean, Samos, Greece*

*This is a gentle introduction to functional analysis that is clearly written and comes with detailed, elegant and effective proofs and well-chosen examples. ... This book is written with great care and with much sympathy to the reader. It is pleasant to read... It is simply a good book to learn the foundations of functional analysis.*

—*Zentralblatt MATH*

Graduate Studies in Mathematics, Volume 66

2004; 322 pp.; hardcover; ISBN: 978-0-8218-3646-0; List US\$58; AMS members US\$46; Order code: GSM/66

## ◆ UNDERGRADUATE

◆ Instructor's Manual Available

## Advanced Calculus

### Second Edition

Patrick M. Fitzpatrick, *University of Maryland, College Park, MD*

This self-contained book is intended as a text for courses that furnish the backbone of the student's undergraduate education in mathematical analysis. Supplemented with numerous exercises, *Advanced Calculus* is a perfect book for undergraduate students of analysis.

An instructor's manual for this title is available electronically. Please send email to [textbooks@ams.org](mailto:textbooks@ams.org) for more information.

Pure and Applied Undergraduate Texts, Volume 5

2006; 590 pp.; hardcover; ISBN: 978-0-8218-4791-6; List US\$82; AMS members US\$66; Order code: AMSTEXT/5

## ◆ UNDERGRAD / GRAD

## Fourier Analysis and Its Applications

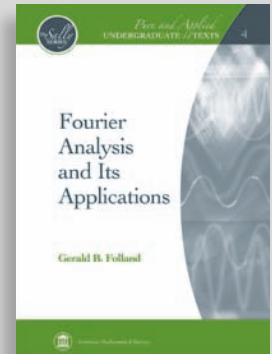
Gerald B. Folland, *University of Washington, Seattle, WA*

*With the same mastery as in his 'Real Analysis' the author now offers us this excellent textbook on Fourier analysis: Fourier series, orthogonal systems, Bessel functions, Fourier and Laplace transforms, which are all very powerful mathematical tools in many a scientific domain. Without being exhaustive and without falling into a profusion of boring details, it nevertheless gives a panorama of these topics that is as complete as the framework of the book allows. Thus this text, which is designed for courses at the advanced undergraduate level and beyond, will also serve as a useful reference book.*

—*Mathematical Reviews*

Pure and Applied Undergraduate Texts, Volume 4

1992; 433 pp.; hardcover; ISBN: 978-0-8218-4790-9; List US\$72; AMS members US\$58; Order code: AMSTEXT/4



## ◆ UNDERGRADUATE

◆ Instructor's Manual Available

## Introduction to Analysis

### Fifth Edition

Edward D. Gaughan, *New Mexico State University, Las Cruces, NM*

*Introduction to Analysis* is designed to bridge the gap between the intuitive calculus usually offered at the undergraduate level and the sophisticated analysis courses the student encounters at the graduate level.

An instructor's manual for this title is available electronically. Please send email to [textbooks@ams.org](mailto:textbooks@ams.org) for more information.

Pure and Applied Undergraduate Texts, Volume 1

1998; 240 pp.; hardcover; ISBN: 978-0-8218-4787-9; List US\$62; AMS members US\$50; Order code: AMSTEXT/1

## ◆ GRADUATE

## Function Theory of One Complex Variable

### Third Edition

Robert E. Greene, *University of California, Los Angeles, CA, and Steven G. Krantz, Washington University, St. Louis, MO*

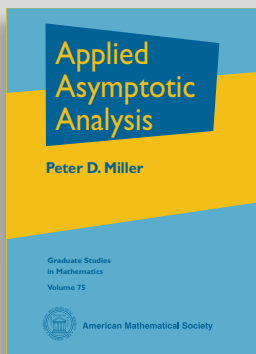
### From a review of the first edition:

*The book is carefully and precisely written in a lively and soft style. It is extremely clear, very explicative and very detailed. Moreover, it is stimulating and very suitable for self-study. Therefore a beginning student will probably have no difficulty using it as a textbook.*

—*Mathematical Reviews*

Graduate Studies in Mathematics, Volume 40

2006; 504 pp.; hardcover; ISBN: 978-0-8218-3962-1; List US\$79; AMS members US\$63; Order code: GSM/40.R



◆ GRADUATE

**Applied Asymptotic Analysis**Peter D. Miller, *University of Michigan, Ann Arbor, MI*

*What is really special about the book is that it includes discussions on a number of topics that are usually not found in books on asymptotics ... very clear and student-friendly ... ideal textbook for a graduate course on asymptotic analysis. Highly recommended.*

—Arno Kuijlaars for *Journal of Approximation Theory*

Graduate Studies in Mathematics, Volume 75

2006; 467 pp.; hardcover; ISBN: 978-0-8218-4078-8; List US\$69;  
AMS members US\$55; Order code: GSM/75

◆ GRADUATE

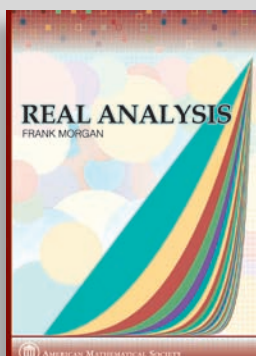
**Analysis****Second Edition**Elliott H. Lieb, *Princeton University, NJ*, and Michael Loss, *Georgia Institute of Technology, Atlanta, GA*

*The essentials of modern analysis ... are presented in a rigorous and pedagogical way ... readers ... are guided to a level where they can read the current literature with understanding ... treatment of the subject is as direct as possible.*

—Zentralblatt MATH

Graduate Studies in Mathematics, Volume 14

2001; 346 pp.; hardcover; ISBN: 978-0-8218-2783-3; List US\$43;  
AMS members US\$34; Order code: GSM/14.R



◆ UNDERGRADUATE

**Real Analysis**Frank Morgan, *Williams College, Williamstown, MA*

*Reading your book is a refreshingly delightful change from the usual emphasis on series, rather than topology, as a foundation of analysis.*

—Robert Jones, *University of Dusseldorf*

Ideally suited as an undergraduate textbook, this complete book on real analysis will fit comfortably into one semester.

2005; 151 pp.; hardcover; ISBN: 978-0-8218-3670-5; List US\$41;  
AMS members US\$33; Order code: REAL

◆ UNDERGRADUATE

**Real Analysis and Applications****Including Fourier Series and the Calculus of Variations**Frank Morgan, *Williams College, Williamstown, MA*

The text not only provides clear, logical proofs, but also shows the student how to derive them. The excellent exercises come with select solutions in the back. This is a text that makes it possible to do the full theory and significant applications in one semester.

2005; 197 pp.; hardcover; ISBN: 978-0-8218-3841-9; List US\$41;  
AMS members US\$33; Order code: REALAPP

◆ UNDERGRAD / GRAD

**Introduction to Complex Analysis****Second Edition**

Rolf Nevanlinna and Veikko Paatero

*This is a textbook by one of the masters of Complex Analysis. It is a crisp, direct, and surprisingly modern account of the basic material for a first course in Complex Analysis. ... In summary, the book remains an excellent reference for a first course in Complex Analysis. It contains over 300 exercises.*

—MAA Reviews

AMS Chelsea Publishing, Volume 310

1969; 350 pp.; hardcover; ISBN: 978-0-8218-4399-4; List US\$49;  
AMS members US\$44; Order code: CHEL/310.H

◆ GRADUATE

**Introduction to Fourier Analysis and Wavelets**Mark A. Pinsky, *Northwestern University, Evanston, IL*

This book provides a concrete introduction to a number of topics in harmonic analysis, accessible at the early graduate level or, in some cases, at an upper undergraduate level. The text contains numerous examples and more than 200 exercises, each located in close proximity to the related theoretical material.

Graduate Studies in Mathematics, Volume 102

2002; 376 pp.; hardcover; ISBN: 978-0-8218-4797-8; List US\$69;  
AMS members US\$55; Order code: GSM/102

◆ GRADUATE

**Tools of the Trade****Introduction to Advanced Mathematics**Paul J. Sally, Jr., *University of Chicago, IL*

This book provides a transition from the formula-full aspects of the beginning study of college level mathematics to the rich and creative world of more advanced topics. It is designed to assist the student in mastering the techniques of analysis and proof that are required to do mathematics.

2008; 193 pp.; hardcover; ISBN: 978-0-8218-4634-6; List US\$49;  
AMS members US\$39; Order code: MBK/55

◆ UNDERGRAD / GRAD

**Complex Function Theory****Second Edition**Donald Sarason, *University of California, Berkeley, CA*

From a review of the previous edition:

*The exposition is clear, rigorous, and friendly.*

—Zentralblatt MATH

Suitable for either an introductory graduate course or an undergraduate course for students with adequate preparation.

2007; 163 pp.; hardcover; ISBN: 978-0-8218-4428-1; List US\$39;  
AMS members US\$31; Order code: MBK/49





◆ GRADUATE

## Principles of Functional Analysis

Second Edition

Martin Schechter, *University of California, Irvine, CA*

*This excellent book provides an elegant introduction to functional analysis ... carefully selected problems ... This is a nicely written book of great value for stimulating active work by students. It can be strongly recommended as an undergraduate or graduate text, or as a comprehensive book for self-study.*

—*European Mathematical Society Newsletter*

Graduate Studies in Mathematics, Volume 36

2002; 425 pp.; hardcover; ISBN: 978-0-8218-2895-3; List US\$65; AMS members US\$52; Order code: GSM/36

◆ UNDERGRADUATE

## Approximately Calculus

Shahriar Shahriari, *Pomona College, Claremont, CA*

*Approximately Calculus* is intended for the reader who has already had an introduction to calculus, but wants to engage the concepts and ideas at a deeper level. It is suitable as a text for an honors or alternative second semester calculus course.

2006; 292 pp.; hardcover; ISBN: 978-0-8218-3750-4; List US\$49; AMS members US\$39; Order code: ACALC

◆ GRADUATE

## Measure Theory and Integration

Michael E. Taylor, *University of North Carolina, Chapel Hill, NC*

*The book is very understandable, requiring only a basic knowledge of analysis. It can be warmly recommended to a broad spectrum of readers, to graduate students as well as young researchers.*

—*European Mathematical Society Newsletter*

Graduate Studies in Mathematics, Volume 76

2006; 319 pp.; hardcover; ISBN: 978-0-8218-4180-8; List US\$59; AMS members US\$47; Order code: GSM/76

◆ UNDERGRAD / GRAD

## Complex Made Simple

David C. Ullrich, *Oklahoma State University, Stillwater, OK*

This book is suitable for a first-year course in complex analysis. The exposition is aimed directly at the students, with plenty of details included.

Graduate Studies in Mathematics, Volume 97

2008; 489 pp.; hardcover; ISBN: 978-0-8218-4479-3; List US\$75; AMS members US\$60; Order code: GSM/97

## APPLICATIONS

◆ UNDERGRADUATE

◆ Instructor's Manual Available

### The Mathematics of Finance

#### Modeling and Hedging

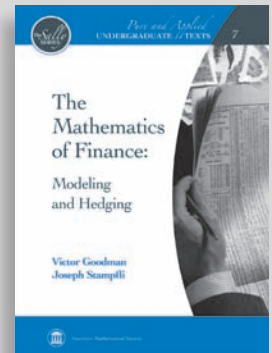
Victor Goodman and Joseph Stampfli, *Indiana University, Bloomington, IN*

This book is ideally suited for an introductory undergraduate course on financial engineering. It explains the basic concepts of financial derivatives, including put and call options, as well as more complex derivatives such as barrier options and options on futures contracts. The book begins with binomial stock price models, moves on to multistage models, then to the Cox-Ross-Rubinstein option pricing process, and then to the Black-Scholes formula. Each of the eleven chapters includes a variety of exercises.

An instructor's manual for this title is available electronically. Please send email to [textbooks@ams.org](mailto:textbooks@ams.org) for more information.

Pure and Applied Undergraduate Texts, Volume 7

2001; 250 pp.; hardcover; ISBN: 978-0-8218-4793-0; List US\$62; AMS members US\$50; Order code: AMSTEXT/7



◆ GRADUATE

### Concise Numerical Mathematics

Robert Plato, *Technical University of Berlin, Germany*

#### From a review of the German edition:

*Appealing result of [the author's] endeavours ... The presentation is concise ... even instructors are offered new views and insights ... the author offers many well-chosen exercises ... The book really is a valuable contribution to the literature on its subject.*

—*Zentralblatt MATH*

Graduate Studies in Mathematics, Volume 57

2003; 453 pp.; hardcover; ISBN: 978-0-8218-2953-0; List US\$89; AMS members US\$71; Order code: GSM/57

#### Softcover Edition

2003; 453 pp.; softcover; ISBN: 978-0-8218-3414-5; List US\$58; AMS members US\$46; Order code: GSM/57.S

◆ UNDERGRADUATE

◆ Instructor's Manual Available

### Numerical Analysis

#### Mathematics of Scientific Computing, Third Edition

David Kincaid and Ward Cheney, *University of Texas at Austin, TX*

The subject of numerical analysis is treated from a mathematical point of view, offering a complete analysis of methods for scientific computing with appropriate motivations and careful proofs.

#### From a review of a previous edition:

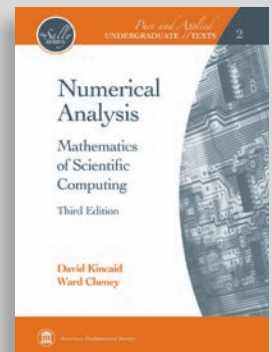
*Good textbooks in this area are scarce, and this one is better than several I have tried to use.*

—*Mathematical Reviews*

An instructor's manual for this title is available electronically. Please send email to [textbooks@ams.org](mailto:textbooks@ams.org) for more information.

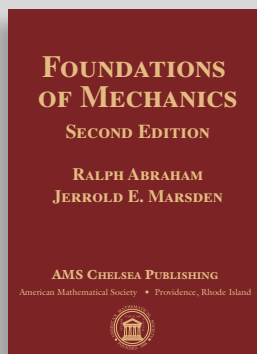
Pure and Applied Undergraduate Texts, Volume 2

2002; 788 pp.; hardcover; ISBN: 978-0-8218-4788-6; List US\$89; AMS members US\$71; Order code: AMSTEXT/2





## DIFFERENTIAL EQUATIONS



◆ GRADUATE

### Foundations of Mechanics

Second Edition

Ralph Abraham, *University of California, Santa Cruz, CA*, and Jerrold E. Marsden, *California Institute of Technology, Pasadena, CA*

*Undoubtedly [the book] will be for years the standard reference on symplectic geometry, analytical mechanics and symplectic methods in mathematical physics.*

—Zentralblatt MATH

AMS Chelsea Publishing, Volume 364

1978; 826 pp.; hardcover; ISBN: 978-0-8218-4438-0; List US\$99;  
AMS members US\$89; Order code: CHEL/364.H

◆ GRADUATE

### Partial Differential Equations

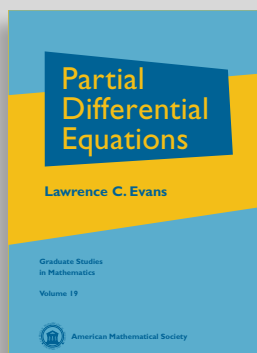
P. R. Garabedian, *New York University-Courant Institute of Mathematical Sciences, NY*

*Because of the author's emphasis on constructive methods for solving problems which are of physical interest, his book will likely be as welcome to the engineer and the physicist as to the mathematician ... The author and publisher are to be complimented on the general appearance of the book.*

—Mathematical Reviews

AMS Chelsea Publishing, Volume 325

1964; 672 pp.; hardcover; ISBN: 978-0-8218-1377-5; List US\$62;  
AMS members US\$56; Order code: CHEL/325.H



◆ GRADUATE

### Partial Differential Equations

Lawrence C. Evans, *University of California, Berkeley, CA*

*In this textbook on partial differential equations (PDE) the author gives a broad survey of many important topics in this area. Generally the approach of the author is to explain the fundamental ideas of a subject in a clearest possible setting, and to emphasize the importance of nonlinear concepts and of generalized solutions. Highly recommend the book for students as well as for lectures in PDE.*

—Monatshefte für Mathematik

Graduate Studies in Mathematics, Volume 19

1998; 662 pp.; hardcover; ISBN: 978-0-8218-0772-9; List US\$83;  
AMS members US\$66; Order code: GSM/19

## DISCRETE MATHEMATICS AND COMBINATORICS

◆ UNDERGRAD / GRAD

### Discrete Mathematics

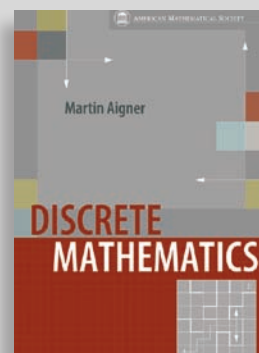
Martin Aigner, *Freie Universität Berlin, Germany*

Praise for the German edition:

*This book is a well-written introduction to discrete mathematics and is highly recommended to every student of mathematics and computer science as well as to teachers of these topics.*

—Mathematical Reviews

2007; 388 pp.; hardcover; ISBN: 978-0-8218-4151-8;  
List US\$59; AMS members US\$47; Order code: DISCMAT



◆ GRADUATE

### An Introduction to Gröbner Bases

William W. Adams, *University of Maryland, College Park, MD*, and Philippe Loustanaunau, *George Mason University, Fairfax, VA*

*A very carefully crafted introduction to the theory and some of the applications of Gröbner bases ... contains a wealth of illustrative examples and a wide variety of useful exercises, the discussion is everywhere well motivated, and further developments and important issues are well sign-posted ... has many solid virtues and is an ideal text for beginners in the subject ... certainly an excellent text.*

—Bulletin of the London Mathematical Society

Graduate Studies in Mathematics, Volume 3

289 pp.; hardcover; ISBN: 978-0-8218-3804-4; List US\$43;  
AMS members US\$34; Order code: GSM/3

◆ UNDERGRADUATE

◆ Instructor's Manual Available

◆ Student Manual Available

### A Discrete Transition to Advanced Mathematics

Bettina Richmond and Thomas Richmond, *Western Kentucky University, Bowling Green, KY*

Aimed at bridging the gap between lower-level mathematics and advanced mathematics this well-written book offers a wealth of examples to develop an understanding of discrete mathematics and critical thinking skills.

An instructor's manual for this title is available electronically. Please send email to [textbooks@ams.org](mailto:textbooks@ams.org) for more information.

A student manual with solutions to selected problems is available electronically at [www.ams.org/bookstore/pspdf/amstext-3-solutions.pdf](http://www.ams.org/bookstore/pspdf/amstext-3-solutions.pdf).

Pure and Applied Undergraduate Texts, Volume 3

2004; 424 pp.; hardcover; ISBN: 978-0-8218-4789-3; List US\$72;  
AMS members US\$58; Order code: AMSTEXT/3





## GENERAL AND INTERDISCIPLINARY

### ◆ UNDERGRADUATE

#### Groups and Symmetry: A Guide to Discovering Mathematics

David W. Farmer, *Bucknell University, Lewisburg, PA*

*Nicely produced and concentrates on the informal analysis of geometrical patterns with the emphasis on informality ... could serve as a useful collection of activities to precede a formal course and would provide a range of intuitive experiences to which the more formal treatment could refer.*

—*The Mathematical Gazette*

**Mathematical World, Volume 5**

1996; 102 pp.; softcover; ISBN: 978-0-8218-0450-6; List US\$22; AMS members US\$18; Order code: MAWRDL/5

### ◆ UNDERGRAD / GRAD

#### Knots and Surfaces

##### A Guide to Discovering Mathematics

David W. Farmer, *Bucknell University, Lewisburg, PA*, and Theodore B. Stanford, *University of Nevada, Reno, NV*

*The book is perfectly suited to a course for non-science majors in need of fulfilling a math requirement. All the sections have worked well at sparking student interest and convincing them that math is much more interesting than mere number-crunching and graphing.*

—*Professor William Bloch, Wheaton College*

**Mathematical World, Volume 6**

1996; 101 pp.; softcover; ISBN: 978-0-8218-0451-3; List US\$22; AMS members US\$18; Order code: MAWRDL/6

### ◆ UNDERGRADUATE

#### The Mathematics of Voting and Elections: A Hands-On Approach

Jonathan K. Hodge, *Grand Valley State University, Allendale, MI*, and Richard E. Klima, *Appalachian State University, Boone, NC*

*The book by Hodge and Klima is an excellent entry into this field ... has plenty of material for a one-semester course ... friendly and clear style that students will appreciate ... well-written and well-edited ... Every instructor teaching this subject should consider this as the textbook...*

—*MAA Reviews*

**Mathematical World, Volume 22**

2005; 226 pp.; softcover; ISBN: 978-0-8218-3798-6; List US\$37; AMS members US\$30; Order code: MAWRDL/22

### ◆ UNDERGRADUATE

#### A View from the Top

##### Analysis, Combinatorics and Number Theory

Alex Iosevich, *University of Missouri, Columbia, MO*

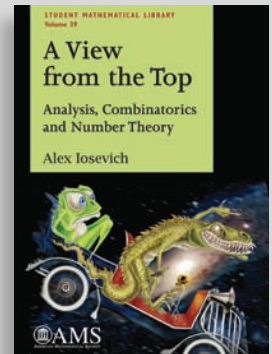
*...a tremendous asset and an endless source of inspiration...*

—*European Mathematical Society Newsletter*

This book is based on a capstone course that the author taught to upper division undergraduate students with the goal to explain and visualize the connections between different areas of mathematics and the way different subject matters flow from one another.

**Student Mathematical Library, Volume 39**

2007; 136 pp.; softcover; ISBN: 978-0-8218-4397-0; List US\$29; AMS members US\$23; Order code: STML/39



### ◆ PROFESSIONALS

#### How to Teach Mathematics, Second Edition

Steven G. Krantz, *Washington University, St. Louis, MO*

*Since the first edition of How to Teach Mathematics the increasing maturity of both traditionalist and reform movements has given Krantz more insights into the teaching of mathematics. This book is a must read for instructors preparing their courses for next semester.*

—*MAA Online*

1999; 307 pp.; softcover; ISBN: 978-0-8218-1398-0; List US\$27; AMS members US\$22; Order code: HTM/2

### ◆ UNDERGRADUATE

#### Roots to Research

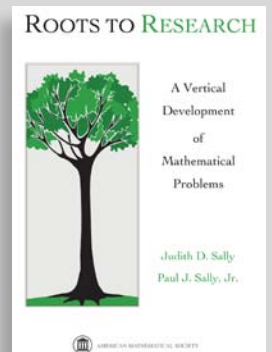
##### A Vertical Development of Mathematical Problems

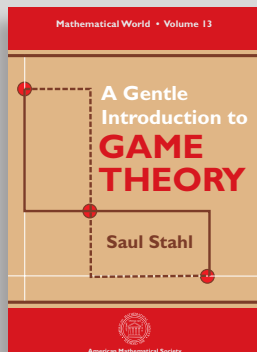
Judith D. Sally, *Northwestern University, Evanston, IL*, and Paul J. Sally, Jr., *University of Chicago, IL*

*Many references are given but the book is largely self-contained. The authors have done a remarkable job of giving a seamless presentation of material at very different levels of difficulty. Teachers and students will appreciate this book both for the information it contains and as a model of expository writing.*

—*Mathematical Reviews*

2007; 338 pp.; hardcover; ISBN: 978-0-8218-4403-8; List US\$49; AMS members US\$39; Order code: MBK/48





## ◆ UNDERGRADUATE

**A Gentle Introduction to Game Theory**Saul Stahl, *University of Kansas, Lawrence, KS*

*This book is an excellent introduction to the mathematical aspects of game theory for beginners without a background in calculus.*

—*Journal of Mathematical Psychology*

**Mathematical World, Volume 13**

1999; 176 pp.; softcover; ISBN: 978-0-8218-1339-3; List US\$28;  
AMS members US\$22; Order code: MAWRDL/13

## ◆ UNDERGRADUATE

**Techniques of Problem Solving**Steven G. Krantz, *Washington University, St. Louis, MO*

*...not only introduces students to many of the great problems of mathematics, but also informs them about the process of solving these problems. The text gives compelling examples that capture students' interest and encourages them to work problems at the end of the chapter ... Although the book would be excellent for a senior-level capstone course in mathematics, it would also appeal to advanced lower-division or strong high school students as well.*

—*The Mathematics Teacher*

1997; 465 pp.; softcover; ISBN: 978-0-8218-0619-7; List US\$38;  
AMS members US\$30; Order code: TPS

**GEOMETRY AND TOPOLOGY**

## ◆ UNDERGRAD / GRAD

**Continuous Symmetry****From Euclid to Klein**

William Barker, *Bowdoin College, Brunswick, ME, and*  
Roger Howe, *Yale University, New Haven, CT*

The fundamental idea of geometry is that of symmetry. With that principle as the starting point, Barker and Howe begin an insightful and rewarding study of Euclidean geometry.

This text is for a one-semester undergraduate course on geometry. It is richly illustrated and contains hundreds of exercises.

2007; 544 pp.; hardcover; ISBN: 978-0-8218-3900-3; List US\$69;  
AMS members US\$55; Order code: MBK/47

## ◆ GRADUATE

**Geometry of Manifolds**

Richard L. Bishop, *University of Illinois, Urbana, IL, and*  
Richard J. Crittenden

**From a review of the first edition:**

*This book represents an excellent treatment of a wide section of modern differential geometry ... The style is elegant and at the same time considerate for the needs of a beginner ... a great number of well chosen problems with pertinent references ... anybody who chooses to base his course on differential geometry at the graduate level on this book could do no better.*

—*Mathematical Reviews*

**AMS Chelsea Publishing, Volume 344**

1964; 273 pp.; hardcover; ISBN: 978-0-8218-2923-3; List US\$43;  
AMS members US\$39; Order code: CHEL/344.H

## ◆ UNDERGRADUATE

**Portraits of the Earth****A Mathematician Looks at Maps**Timothy G. Feeman, *Villanova University, PA*

*Includes necessary details without getting bogged down in small details or putting in so much that it would turn off non-math majors. The writing is formal and engaging. The book can be used in a formal course with a group of students, independent study with one student, or just by a professor who wishes to learn more ... I recommend this for yourselves, for your bookshelves, and for your students.*

—*MAA Online*

**Mathematical World, Volume 18**

2002; 123 pp.; softcover; ISBN: 978-0-8218-3255-4; List US\$28; AMS  
members US\$22; Order code: MAWRDL/18

## ◆ UNDERGRADUATE

**Beginning Topology**

Sue E. Goodman, *University of North Carolina,*  
*Chapel Hill, NC*

*Beginning Topology* is designed to give undergraduate students a broad notion of the scope of topology in areas of point-set, geometric, combinatorial, differential, and algebraic topology, including an introduction to knot theory.

**Pure and Applied Undergraduate Texts, Volume 10**

2005; 236 pp.; hardcover; ISBN: 978-0-8218-4796-1; List US\$62;  
AMS members US\$50; Order code: AMSTEXT/10



◆ UNDERGRADUATE

## Lessons in Geometry

### I. Plane Geometry

Jacques Hadamard

This is a book in the tradition of Euclidean synthetic geometry written by one of the twentieth century's great mathematicians. The original audience was pre-college teachers, but it is useful as well to gifted high school students and college students, in particular, to mathematics majors interested in geometry from a more advanced standpoint.

2008; 330 pp.; hardcover; ISBN: 978-0-8218-4367-3; List US\$59; AMS members US\$47; Order code: MBK/57

◆ GRADUATE

## Differential Geometry, Lie Groups, and Symmetric Spaces

Sigurdur Helgason, *Massachusetts Institute of Technology, Cambridge, MA*

*One of the most important and excellent textbooks and a reference work about contemporary differential geometry ...*

—Zentralblatt MATH

Graduate Studies in Mathematics, Volume 34

2001; 641 pp.; hardcover; ISBN: 978-0-8218-2848-9; List US\$76; AMS members US\$61; Order code: GSM/34

◆ UNDERGRADUATE

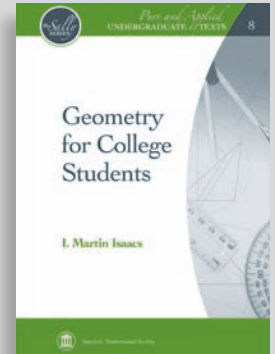
## Geometry for College Students

I. Martin Isaacs, *University of Wisconsin, Madison, WI*

An important difference of this book from the majority of modern college geometry texts is that it avoids axiomatics. This makes the book suitable to second- or third-year mathematics majors and also to secondary mathematics education majors.

Pure and Applied Undergraduate Texts, Volume 8

2001; 222 pp.; hardcover; ISBN: 978-0-8218-4794-7; List US\$62; AMS members US\$50; Order code: AMSTEXT/8



◆ UNDERGRAD / GRAD

## Elements of Combinatorial and Differential Topology

V. V. Prasolov, *Independent University of Moscow, Russia*

*This book is a tour de force introduction to combinatorial and differential topology ... The author strikes a perfect balance between rigor and intuition, which allows him to delve much deeper into the chosen topics than is customary for an introductory topology course.*

—Mathematical Reviews

Graduate Studies in Mathematics, Volume 74

2006; 331 pp.; hardcover; ISBN: 978-0-8218-3809-9; List US\$59; AMS members US\$47; Order code: GSM/74

◆ UNDERGRAD / GRAD

## Curves and Surfaces

Sebastián Montiel and Antonio Ros, *Universidad de Granada, Spain*

*... the authors' exposition is elegant. The proofs are detailed, good examples are selected, exercises are ample and hints for solving the exercises are often provided.*

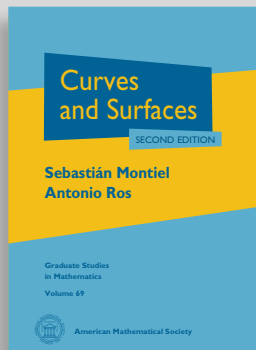
—MAA Reviews

This introductory textbook puts forth a clear and focused point of view on the differential geometry of curves and surfaces, emphasizing the global aspects. The excellent collection of examples and exercises (with hints) will help students in learning the material.

This book is jointly published by the AMS and the Real Sociedad Matemática Española (RSME).

Graduate Studies in Mathematics, Volume 69

2005; 376 pp.; hardcover; ISBN: 978-0-8218-3815-0; List US\$62; AMS members US\$50; Order code: GSM/69



◆ UNDERGRAD / GRAD

## Differential Geometry

Curves – Surfaces – Manifolds, Second Edition

Wolfgang Kühnel, *University of Stuttgart, Germany*

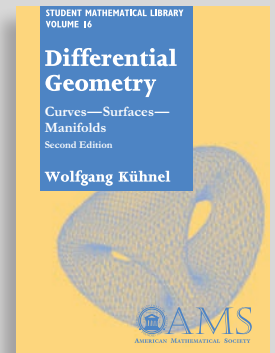
From a review of the first edition:

*It is extraordinarily welcome that this comprehensive textbook containing all the high points of differential geometry is now available in an English translation. Required reading for all mathematicians!*

—translated from *International Mathematical News*

Student Mathematical Library, Volume 16

2006; 380 pp.; softcover; ISBN: 978-0-8218-3988-1; List US\$51; AMS members US\$41; Order code: STML/16.R







## ♦ GRADUATE

**Elements of Homology Theory**

V. V. Prasolov, *Independent University of Moscow, Russia*

This book, a natural continuation of Prasolov's *Elements of Combinatorial and Differential Topology*, defines simplicial homology and cohomology and offers many examples of their applications. The book also addresses singular homology and cohomology and offers applications of homology theory to the topology of manifolds. Numerous exercises will capture the attention of readers with a variety of levels of expertise.

**Graduate Studies in Mathematics, Volume 81**

2007; 418 pp.; hardcover; ISBN: 978-0-8218-3812-9; List US\$69;  
AMS members US\$55; Order code: GSM/81

## ♦ UNDERGRAD / GRAD

**Elementary Topology****Problem Textbook**

O. Ya. Viro, *Stony Brook University, NY*, O. A. Ivanov, *Steklov Institute of Mathematics, St. Petersburg, Russia*,  
N. Yu. Netsvetov, *St. Petersburg State University, Russia*, and V. M. Kharlamov, *University Louis Pasteur, Strasbourg, Cedex, France*

This text contains a detailed introduction to general topology and an introduction to algebraic topology via its most classical and elementary segment. Proofs of theorems are separated from their formulations and are gathered at the end of each chapter, making this book appear like a problem book and also giving it appeal to the expert as a handbook. The book includes about 1,000 exercises.

2008; 400 pp.; hardcover; ISBN: 978-0-8218-4506-6; List US\$59;  
AMS members US\$47; Order code: MBK/54

**MATHEMATICAL PHYSICS**

## ♦ GRADUATE

**Quantum Mechanics for Mathematicians**

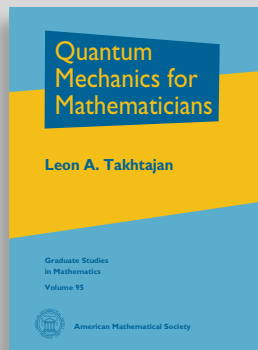
Leon A. Takhtajan, *Stony Brook University, NY*

*...heaven-sent to the aforementioned analytic number theorist, i.e., me, because it is mathematics, not physics: the exposition is peppered with definitions and theorems, and proofs!, proofs!, proofs!...*

—Michael Berg for MAA Reviews

**Graduate Studies in Mathematics, Volume 95**

2008; 387 pp.; hardcover; ISBN: 978-0-8218-4630-8; List US\$69;  
AMS members US\$55; Order code: GSM/95

**NUMBER THEORY**

## ♦ GRADUATE

**Basic Quadratic Forms**

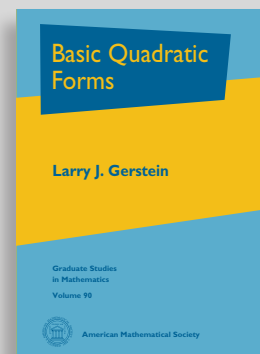
Larry J. Gerstein, *University of California, Santa Barbara, CA*

*Basic Quadratic Forms is a great introduction to the theory of quadratic forms. The author is clearly an expert on the area as well as a masterful teacher. ... It should be included in the collection of any quadratic forms enthusiast.*

—MAA Reviews

**Graduate Studies in Mathematics, Volume 90**

2008; 255 pp.; hardcover; ISBN: 978-0-8218-4465-6;  
List US\$55; AMS members US\$44; Order code: GSM/90



## ♦ UNDERGRADUATE

**Mathematical Ciphers****From Caesar to RSA**

Anne L. Young, *Loyola College in Maryland, Baltimore, MD*

Throughout history, many different coding schemes have been devised. One of the oldest and simplest mathematical systems was used by Julius Caesar. This is where *Mathematical Ciphers* begins. Building on that simple system, Young moves on to more complicated schemes, ultimately ending with the RSA cipher, which is used to provide security for the Internet. *Mathematical Ciphers* can be used as a textbook for an introductory course in mathematics for all majors.

**Mathematical World, Volume 25**

2006; 159 pp.; softcover; ISBN: 978-0-8218-3730-6; List US\$29;  
AMS members US\$23; Order code: MAWRLD/25



## PROBABILITY

### ◆ UNDERGRAD / GRAD

#### Probability Theory in Finance

##### A Mathematical Guide to the Black-Scholes Formula

Seán Dineen, *University College Dublin, Ireland*

*For budding financial engineers, this is an outstanding introduction to the mathematics that underlies derivatives pricing theory.... It also offers plenty of exercises that will help you build mastery.*

—Glyn Holton, *founder Contingency Analysis and Riskbook.com*

Graduate Studies in Mathematics, Volume 70

2005; 294 pp.; hardcover; ISBN: 978-0-8218-3951-5; List US\$58; AMS members US\$46; Order code: GSM/70

### ◆ UNDERGRADUATE

#### Introduction to Probability

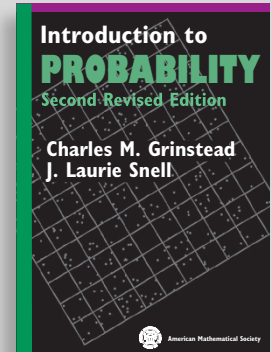
##### Second Revised Edition

Charles M. Grinstead, *Swarthmore College, PA*, and  
J. Laurie Snell, *Dartmouth College, Hanover, NH*

*The book is a beautiful introduction to probability theory at the beginning level. The book contains a lot of examples and an easy development of theory without any sacrifice of rigor, keeping the abstraction to a minimal level. It is indeed a valuable addition to the study of probability theory*

—Zentralblatt MATH

1997; 510 pp.; hardcover; ISBN: 978-0-8218-0749-1; List US\$57; AMS members US\$46; Order code: IPROB



### ◆ GRADUATE

#### Probability Theory

S. R. S. Varadhan, *New York University - Courant Institute of Mathematical Sciences, NY*

S. R. S. Varadhan is recognized as a top expert in probability theory. This volume presents topics in probability theory covered during a first-year graduate course given by Varadhan at the Courant Institute of Mathematical Sciences. The book is a suitable text for a first-year graduate course in probability.

Titles in this series are co-published with the Courant Institute of Mathematical Sciences at New York University.

Courant Lecture Notes, Volume 7

2001; 167 pp.; softcover; ISBN: 978-0-8218-2852-6; List US\$25; AMS members US\$20; Order code: CLN/7

### ◆ UNDERGRAD / GRAD

#### Markov Chains and Mixing Times

David A. Levin, *University of Oregon, Eugene, OR*, Yuval Peres, *Microsoft Research, Redmond, WA*, and University of California, Berkeley, CA, and Elizabeth L. Wilmer, *Oberlin College, OH*

This book is an introduction to the modern approach to the theory of Markov chains. The main goal of this approach is to determine the rate of convergence of a Markov chain to the stationary distribution as a function of the size and geometry of the state space. The book includes many examples and provides brief introductions to some central models of statistical mechanics.

2009; 371 pp.; hardcover; ISBN: 978-0-8218-4739-8; List US\$65; AMS members US\$52; Order code: MBK/58

### ◆ UNDERGRAD / GRAD

### ◆ Instructor's Manual Available ◆ Student Manual Available

#### Probability: The Science of Uncertainty with Applications to Investments, Insurance, and Engineering

Michael A. Bean

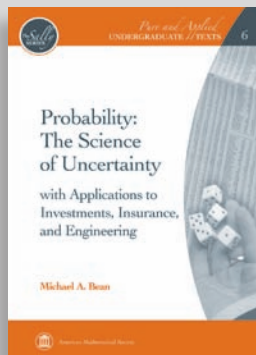
Written by a Fellow of the Casualty Actuarial Society and the Society of Actuaries with many years of experience as a university professor and industry practitioner, the book is suitable as a text for senior undergraduate and beginning graduate students in mathematics, statistics, actuarial science, finance, or engineering.

An instructor's manual for this title is available electronically. Please send email to [textbooks@ams.org](mailto:textbooks@ams.org) for more information.

A student manual with solutions to selected problems is available electronically at [www.ams.org/bookstore/pspdf/amstext-6-solutions.pdf](http://www.ams.org/bookstore/pspdf/amstext-6-solutions.pdf).

Pure and Applied Undergraduate Texts, Volume 6

2001; 448 pp.; hardcover; ISBN: 978-0-8218-4792-3; List US\$72; AMS members US\$58; Order code: AMSTEXT/6



### ◆ GRADUATE

#### Probability

Davar Khoshnevisan, *University of Utah, Salt Lake City, UT*

*...overall the text is neatly written and presents not only good mathematics but also a heuristic view of modern probability, including numerous exercises and historical notes.*

—European Mathematical Society Newsletter

Graduate Studies in Mathematics, Volume 80

2007; 224 pp.; hardcover; ISBN: 978-0-8218-4215-7; List US\$45; AMS members US\$36; Order code: GSM/80

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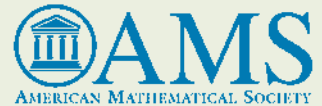
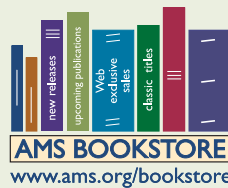
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