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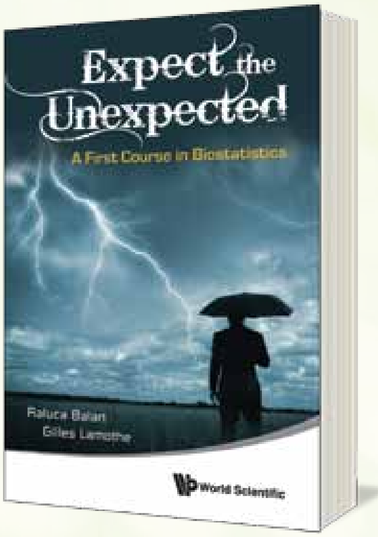


Editor's Pick

EXPECT THE UNEXPECTED

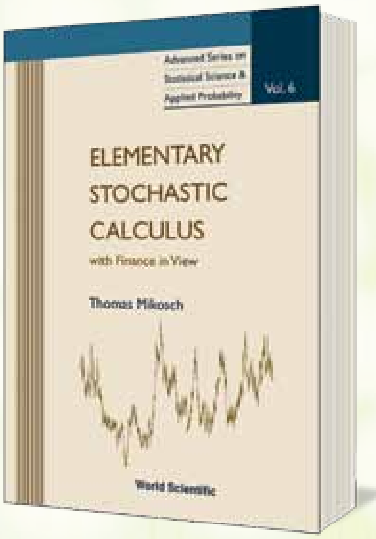
A First Course in Biostatistics

by **Raluca Balan** & **Gilles Lamothe** *(University of Ottawa, Canada)*

Statistical reasoning and modeling are of critical importance to modern biology. This textbook introduces fundamental concepts from probability and statistics which will pave the way for the student of biology to become a well-rounded scientist. No previous study of probability or statistics is assumed. Calculus topics are not used extensively in this book, though some integration and differentiation are expected. The calculus prerequisite is primarily intended to assure a certain level of mathematical maturity.

This book puts emphasis on examples, which are presented to motivate the theory. The presentation style is concise and self-contained, briefly including the mathematical elements that are needed for studying probability and statistics. The examples are relevant to students in the life sciences with interests in genetics, biology, ecology, health, etc.

252pp **Apr 2011**
978-981-4291-32-3 **US$60** **£39**



Bestselling Textbook

Advanced Series on Statistical Science and Applied Probability

ELEMENTARY STOCHASTIC CALCULUS, WITH FINANCE IN VIEW

by **Thomas Mikosch** *(University of Groningen, The Netherlands)*

"This book under review can be determined as a very successful work … the author's choice of the material is done with good taste and expertise … It can be strongly recommended to graduate students and practitioners in the field of finance and economics."

Mathematics Abstracts

"… this is a well-written book, which makes the difficult object of mathematical finance easy to understand also for non-mathematicians. It might be useful for economics students and all practitioners in the field of finance who are interested in the mathematical methodology behind the Black-Scholes model."

Statistical Papers

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224pp **Classic Title**
978-981-02-3543-7 **US$55** **£37**

Bestselling Textbook in Third Edition

INTRODUCTION TO STOCHASTIC CALCULUS WITH APPLICATIONS

Third Edition

by **Fima C Klebaner** *(Monash University, Australia)*

This book presents a concise and rigorous treatment of stochastic calculus. It also gives its main applications in finance, biology and engineering. In finance, the stochastic calculus is applied to pricing options by no arbitrage. In biology, it is applied to populations' models, and in engineering it is applied to filter signal from noise. Not everything is proved, but enough proofs are given to make it a mathematically rigorous exposition.

Contents: Preliminaries from Calculus; Concepts of Probability Theory; Basic Stochastic Processes; Brownian Motion Calculus; Stochastic Differential Equations; Diffusion Processes; Martingales; Calculus for Semimartingales; Pure Jump Processes; Change of Probability Measure; Applications in Finance: Stock and FX Options; Applications in Finance: Bonds, Rates and Options; Applications in Biology; Applications in Engineering and Physics.

470pp **Dec 2011**
978-1-84816-831-2 **US$98** **£65**
978-1-84816-832-9(pbk) **US$58** **£38**

Textbook

ELEMENTS OF STOCHASTIC FINANCE

Theory, Methods, and Computation

by **Frederi G Viens**, **José Enrique Figueroa-López** *(Purdue University, USA)* & **Alexandra Chronopoulou** *(Institut National de Recherche en Informatique et Automatique, France)*

This comprehensive course on financial mathematics is aimed at beginning graduate students in any field with a good quantitative background, and is appropriate for advanced undergraduates in mathematics and statistics. It is also invaluable as a reference for practitioners in financial engineering. A large number of exercises illustrate the theory and practice of each financial topic, some of which encourage the reader to engage in high-level programming. This is facilitated by an extensive online companion to the text, in the form of a primer on programming, tailored to the text's exercises, covering languages popular in the financial industry, including C++, C#, Matlab, and Excel/VBA.

400pp	**Jun 2012**	
978-981-4307-36-9	**US$78**	**£51**
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Imperial College Press Optimization Series

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Vol. 2

by **A B Piunovskiy** *(The University of Liverpool, UK)*

This invaluable book provides approximately eighty examples illustrating the theory of controlled discrete-time Markov processes. Except for applications of the theory to real-life problems like stock exchange, queues, gambling, optimal search etc, the main attention is paid to counter-intuitive, unexpected properties of optimization problems. Such examples illustrate the importance of conditions imposed in the theorems on Markov Decision Processes. Many of the examples are based upon examples published earlier in journal articles or textbooks while several other examples are new. The aim was to collect them together in one reference book which should be considered as a complement to existing monographs on Markov decision processes. This book is self-contained and unified in presentation.

230pp	**Apr 2012**	
978-1-84816-793-3	**US$78**	**£51**
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NONLINEAR MIXTURE MODELS

A Bayesian Approach

by **Tatiana Tatarinova** *(University of Glamorgan, UK)* &
Alan Schumitzky *(University of Southern California, USA)*

This book provides a broad introduction to the important subject of nonlinear mixture models from a Bayesian perspective. It contains background material, a brief description of Markov chain theory, as well as novel algorithms and their applications. It is self-contained and unified in presentation, which makes it ideal for use as an advanced textbook by graduate students and as a reference for independent researchers. The explanations in the book are detailed enough to capture the interest of the curious reader, and complete enough to provide the necessary background material needed to go further into the subject and explore the research literature.

250pp	**Jun 2012**	
978-1-84816-756-8	**US$90**	**£59**
978-1-84816-757-5(ebook)	**US$117**	

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Health, Elections, Gambling and War
Second Edition

by **Michael Mark Woolfson** *(University of York, UK)*

Probability and statistics impinge on the life of the average person in a variety of ways — as is suggested by the title of this book. Very often, information is provided that is factually accurate but intended to present a biased view. This book presents the important results of probability and statistics without making heavy mathematical demands on the reader. It should enable an intelligent reader to properly assess statistical information and to understand that the same information can be presented in different ways. The author presents a new chapter exploring science and society including the way that scientists communicate with the public on current topics such as global warming.

240pp	**Apr 2012**	
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SIMULATING COPULAS

Stochastic Models, Sampling Algorithms and Applications

by **Jan-Frederik Mai** *(Assenagon Credit Management GmbH, Germany)* & **Matthias Scherer** *(Technische Universität München, Germany)*

This book provides the reader with a background on simulating copulas and multivariate distributions in general. It unifies the scattered literature on the simulation of various families of copulas (elliptical, Archimedean, Marshall-Olkin type, etc.) as well as on different construction principles (factor models, pair-copula construction, etc.). The book is self-contained and unified in presentation and can be used as a textbook for advanced undergraduate or graduate students with a firm background in stochastics. Alongside the theoretical foundation, ready-to-implement algorithms and many examples make this book a valuable tool for anyone who is applying the methodology.

400pp	**May 2012**	
978-1-84816-874-9	**US$120**	**£79**
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by **Hari Bercovici** & **John Williams**
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The book will describe those results in free probability which rely on analytic functions of one variable. These results include free versions of many known results about the addition and multiplication of random variables, including characterizations of infinite divisibility and weak limit theorems. The complex analysis necessary for these developments will be presented to the extent that it exceeds standard graduate presentations of the subject.

250pp	**Mar 2012**	
978-981-4335-56-0	**US$68**	**£42**
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Textbook

CONTINUOUS-TIME MARKOV CHAINS

Q-Matrix Problem

by **Hou Zhenting, Li Junping**
(Central South University, China) &
Chen Anyue *(University of Liverpool, UK & University of Hong Kong, Hong Kong)*

This book reports the recent progress in the field of continuous-time Markov chains (CTMCs), with a comprehensive and extensive discussion on its general theory and applications. It covers the properties of Q-matrix and transition function as well as the existence and uniqueness of Q-processes in stable and unstable cases. Monotonity, recurrency and ergodicity criteria are presented in this book. It also gives some important conclusions regarding the transiency properties, including invariant measures and quasi-limiting distributions for some important Q-processes.

400pp	**Mar 2012**	
978-981-283-806-3	**US$77**	**£53**

LARGE SAMPLE INFERENCE FOR LONG MEMORY PROCESSES

by **Liudas Giraitis** *(Queen Mary, University of London, UK)*,
Hira L Koul *(Michigan State University, USA)*
& **Donatas Surgailis** *(Vilnius University, Lithuania)*

Contents: Some Preliminaries; Characterization of Short and Long Memory Processes; Asymptotics of the Variance; Limit Theory for Sums; Properties of DFT and Periodogram; Asymptotic Theory for Quadratic Forms; Parametric Models; Parametric and Semiparametric Estimation; Elementary Inference Problems; Testing for Long Memory and Breaks; Empirical Processes; Regression Models; First Order Asymptotics of M and R Estimators; Nonparametric Regression; Model Diagnostics; Lack-of-Fit Tests; Testing a Subhypothesis; Appell Polynomials, Wick Products & Diagram Formulas.

588pp **Nov 2011**
978-1-84816-278-5 **US$118** **£78**

Statistical Science and Interdisciplinary Research

STATISTICAL PARADIGMS

Vol. 14

Recent Advances and Reconciliations
edited by **Ashis SenGupta, Tapas Samanta**
& **Ayanendranath Basu** *(Indian Statistical Institute, India)*

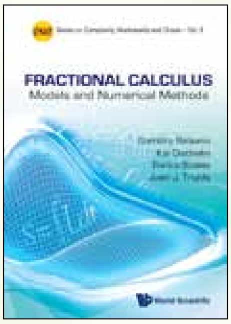
This volume consists of a collection of research articles on classical and emerging Statistical Paradigms — parametric, non-parametric and semi-parametric, frequentist and Bayesian — encompassing both theoretical advances and emerging applications in a variety of scientific disciplines. For advances in theory, the topics include: Bayesian Inference, Directional Data Analysis, Distribution Theory, Econometrics and Multiple Testing Procedures. The areas in emerging applications include: Bioinformatics, Factorial Experiments and Linear Models, Hotspot Geoinformatics and Reliability.

250pp **Jan 2012**
978-981-4343-95-4 **US$96** **£62**

Series on Complexity, Nonlinearity and Chaos

FRACTIONAL CALCULUS: MODELS AND NUMERICAL METHODS

by **Dumitru Baleanu** *(Çankaya University, Turkey & Institute of Space Sciences, Romania)*, **Kai Diethelm** *(Technische Universität Braunschweig, Germany & GNS mbH, Germany)*, **Enrico Scalas** *(Università del Piemonte Orientale, Italy)* & **Juan J Trujillo** *(University of La Laguna, Spain)*



The subject of fractional calculus and its applications (that is, convolution-type pseudo-differential operators including integrals and derivatives of any arbitrary real or complex order) has gained considerable popularity and importance during the past three decades or so, mainly due to its applications in diverse fields of science and engineering. These operators have been used to model problems with anomalous dynamics, however, they also are an effective tool as filters and controllers, and they can be applied to write complicated functions in terms of fractional integrals or derivatives of elementary functions, and so on.

This book will give readers the possibility of finding very important mathematical tools for working with fractional models and solving fractional differential equations, such as a generalization of Stirling numbers in the framework of fractional calculus and a set of efficient numerical methods. Moreover, we will introduce some applied topics, in particular fractional variational methods which are used in physics, engineering or economics.

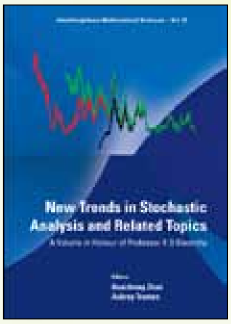
450pp **Dec 2011**
978-981-4355-20-9 **US$130** **£85**
978-981-4355-21-6(ebook) **US$169**

Interdisciplinary Mathematical Sciences

NEW TRENDS IN STOCHASTIC ANALYSIS AND RELATED TOPICS

Vol. 12

A Volume in Honour of Professor K D Elworthy
edited by **Huaizhong Zhao** *(Loughborough University, UK)*
& **Aubrey Truman** *(Swansea University, UK)*

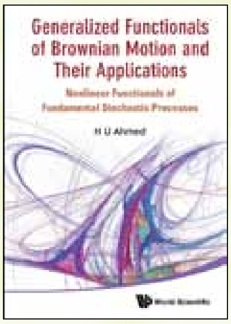


The volume is dedicated to Professor David Elworthy to celebrate his fundamental contribution and exceptional influence on stochastic analysis and related fields. Stochastic analysis has been profoundly developed as a vital fundamental research area in mathematics in recent decades. It has been discovered to have intrinsic connections with many other areas of mathematics such as partial differential equations, functional analysis, topology, differential geometry, dynamical systems, etc. Mathematicians developed many mathematical tools in stochastic analysis to understand and model random phenomena in physics, biology, finance, fluid, environment science, etc. This volume contains 12 comprehensive review/new articles written by world leading researchers (by invitation) and their collaborators.

480pp **Nov 2011**
978-981-4360-91-3 **US$138** **£91**
978-981-4360-92-0(ebook) **US$179**

GENERALIZED FUNCTIONALS OF BROWNIAN MOTION AND THEIR APPLICATIONS

Nonlinear Functionals of Fundamental Stochastic Processes
by **N U Ahmed** *(University of Ottawa, Canada)*

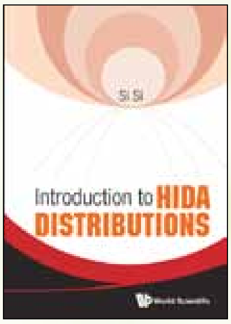


This invaluable research monograph presents a unified and fascinating theory of generalized functionals of Brownian motion and other fundamental processes such as fractional Brownian motion and Levy process — covering the classical Wiener–Ito class including the generalized functionals of Hida as special cases, among others. It presents a thorough and comprehensive treatment of the Wiener–Sobolev spaces and their duals, as well as Malliavin calculus with their applications. The presentation is lucid and logical, and is based on a solid foundation of analysis and topology. The monograph develops the notions of compactness and weak compactness on these abstract Fock spaces and their duals, clearly demonstrating their nontrivial applications to stochastic differential equations in finite and infinite dimensional Hilbert spaces, optimization and optimal control problems.

316pp **Sep 2011**
978-981-4366-36-6 **US$88** **£58**
978-981-4366-37-3(ebook) **US$114**

INTRODUCTION TO HIDA DISTRIBUTIONS

by **Si Si** *(Aichi Prefectural University, Japan)*



This book provides the mathematical definition of white noise and gives its significance. White noise is in fact a typical class of idealized elemental (infinitesimal) random variables. Thus, we are naturally led to have functionals of such elemental random variables that is white noise. This book analyzes those functionals of white noise, particularly the generalized ones called Hida distributions, and highlights some interesting future directions. The main part of the book involves infinite dimensional differential and integral calculus based on the variable which is white noise.

The present book can be used as a supplementary book to *Lectures on White Noise Functionals* published in 2008, with detailed background provided.

268pp **Sep 2011**
978-981-283-688-5 **US$65** **£45**
978-981-283-689-2(ebook) **US$85**

Textbook

AN INTRODUCTION TO THE THEORY OF PROBABILITY

by **Parimal Mukhopadhyay**

(Indian Statistical Institute, India)

This book provides a systematic exposition of the theory in a setting which contains a balanced mixture of the classical approach and the modern day axiomatic approach. After reviewing the basis of the theory, the book considers univariate distributions, bivariate normal distribution, multinomial distribution, convergence of random variables and elements of stochastic process. Difficult ideas have been explained lucidly and augmented with explanatory notes, examples and exercises. The basic requirement for reading the book is the knowledge of mathematics at graduate level.

492pp	**Sep 2011**	
978-981-4313-42-1	**US$74**	**£49**
978-981-4313-43-8(ebook)	**US$96**	

World Scientific Series on Nonlinear Science, Series A

Vol. 78

QUALITATIVE AND ASYMPTOTIC ANALYSIS OF DIFFERENTIAL EQUATIONS WITH RANDOM PERTURBATIONS

by **Anatoliy M Samoilenko** *(National Academy of Sciences, Ukraine)*

& **Oleksandr Stanzhytskyi** *(National Kyiv Shevchenko University, Ukraine)*

Differential equations with random perturbations are the mathematical models of real-world processes that cannot be described via deterministic laws, and their evolution depends on random factors. The modern theory of differential equations with random perturbations is on the edge of two mathematical disciplines: random processes and ordinary differential equations. Consequently, the sources of these methods come both from the theory of random processes and from the classic theory of differential equations.

This work focuses on the approach to stochastic equations from the perspective of ordinary differential equations. For this purpose, both asymptotic and qualitative methods which appeared in the classical theory of differential equations and nonlinear mechanics are developed.

324pp	**Jun 2011**	
978-981-4329-06-4	**US$98**	**£61**
978-981-4329-07-1(ebook)	**US$127**	

NONPARAMETRIC STATISTICAL METHODS AND RELATED TOPICS

A Festschrift in Honor of Professor P K Bhattacharya on the Occasion of His 80th Birthday

edited by **J Jiang, G G Roussas** & **F J Samaniego**

(University of California, Davis, USA)

This volume consists of 22 research papers by leading researchers in Probability and Statistics. Many of the papers are focused on themes that Professor Bhattacharya has published on research. Topics of special interest include nonparametric inference, nonparametric curve fitting, linear model theory, Bayesian nonparametrics, change point problems, time series analysis and asymptotic theory. This volume presents state-of-the-art research in statistical theory, with an emphasis on nonparametric inference, linear model theory, time series analysis and asymptotic theory. It will serve as a valuable reference to the statistics research community as well as to practitioners who utilize methodology in these areas of emphasis.

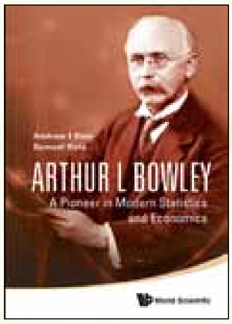
480pp	**Sep 2011**	
978-981-4366-56-4	**US$134**	**£88**
978-981-4366-57-1(ebook)	**US$174**	

ARTHUR L BOWLEY

A Pioneer in Modern Statistics and Economics

by **Andrew I Dale** *(University of KwaZulu-Natal, South Africa)*

& **Samuel Kotz** *(George Washington University, USA)*



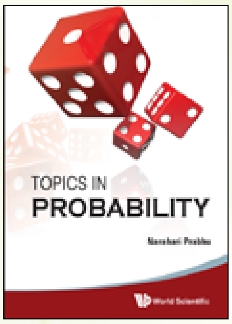
Arthur Lyon Bowley, the founding father of modern statistics, was an important and colorful figure and a leader in cementing the foundations of statistical methodology, including survey methodology, and of the applications of statistics to economical and social issues during the late 19th and early 20th centuries. In many respects, he was ahead of his time.

The giants in this field around that time were largely concentrated in the British Isles and Scandinavian countries; among these contributors, Arthur Bowley was one of the most active in revolutionizing statistical methodology and its economic applications. However, Bowley has been vastly undervalued by subsequent commentators — while hundreds of articles and books have been written on Karl Pearson, those on Arthur Bowley amount to a dozen or less. This book seeks to remedy this and fill in an important omission in the monographical literature on the history of statistics. In particular, the recent resurgence of interest in poverty research has led to a renewed interest in Bowley's legacy.

544pp	**Apr 2011**	
978-981-283-550-5	**US$110**	**£72**
978-981-283-551-2(ebook)	**US$143**	

TOPICS IN PROBABILITY

by **Narahari Prabhu** *(Cornell University, USA)*



Recent research in probability has been concerned with applications such as data mining and finance models. Some aspects of the foundations of probability theory have receded into the background. Yet, these aspects are very important and have to be brought back into prominence.

Contents: Probability Distributions; Characteristic Functions; Analytic Characteristic Functions; Infinitely Divisible Distributions; Self-Decomposable Distributions; Triangular Arrays.

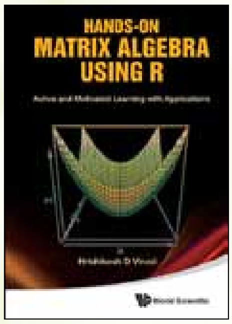
96pp	**Jul 2011**	
978-981-4335-47-8	**US$39**	**£26**

Textbook

HANDS-ON MATRIX ALGEBRA USING R

Active and Motivated Learning with Applications

by **Hrishikesh D Vinod** *(Fordham University, USA)*



"New generations of readers, fluent in computer languages and addicted to the web interfaces will enter effortlessly into the intricate structure of matrices and quadratic forms, with great benefits for their immediate applied mathematical aims. The readers already familiar with theoretical linear algebra will find in the book an invaluable source of examples and novel computer experiments, all illustrating the flexibility and high potential of the language R … A pure delight to the reader."

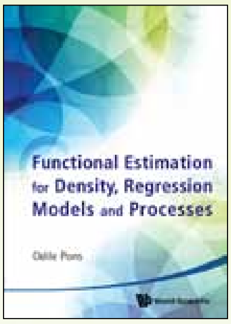
Professor Mihai Putinar
University of California, Santa Barbara, USA

This is the first book of its kind which teaches matrix algebra, allowing the student to learn the material by actually working with matrix objects in modern computer environment of R. Instead of a calculator, R is a vastly more powerful free software and graphics system.

348pp	**Mar 2011**	
978-981-4313-68-1	**US$105**	**£68**
978-981-4313-69-8(pbk)	**US$52**	**£34**

FUNCTIONAL ESTIMATION FOR DENSITY, REGRESSION MODELS AND PROCESSES

by **Odile Pons** *(INRA, France)*



This book presents a unified approach on nonparametric estimators for models of independent observations, jump processes and continuous processes. New estimators are defined and their limiting behavior is studied. From a practical point of view, the book expounds on the construction of estimators for functionals of processes and densities, and provides asymptotic expansions and optimality properties from smooth estimators.

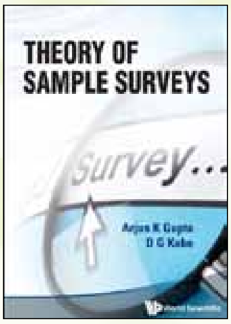
It also presents new regular estimators for functionals of processes, compares histogram and kernel estimators, compares several new estimators for single-index models, and it examines the weak convergence of the estimators.

212pp	**Mar 2011**	
978-981-4343-73-2	**US$75**	**£49**
978-981-4343-74-9(ebook)	**US$98**	

Textbook

THEORY OF SAMPLE SURVEYS

by **Arjun K Gupta** *(Bowling Green State University, USA)* & **D G Kabe** *(St Mary's University, Canada)*



Sample surveys is the most important branch of statistics. Without sample surveys there is no data, and without data there is no statistics. This book is the culmination of the lecture notes developed by the authors. The approach is theoretical in the sense that it gives mathematical proofs of the results in sample surveys. Intended as a textbook for a one-semester course for undergraduate seniors or first-year graduate students, a prerequisite basic knowledge of algebra, calculus, and statistical theory is required to master the techniques described in this book.

Contents: Simple Random Sampling; Sampling with Varying Probabilities of Selection; Stratified Sampling; Systematic Sampling; Ratio Method of Estimation; Regression Method of Estimation; Cluster Sampling; Sub-Sampling Two-Stage and Three-Stage Sampling; Double Sampling; Non-Sampling Errors.

236pp	**Mar 2011**	
978-981-4322-47-8	**US$58**	**£36**

RANDOM SEQUENTIAL PACKING OF CUBES

by **Mathieu Dutour Sikirić** *(Ruđer Bošković Institute, Croatia)* & **Yoshiaki Itoh** *(The Graduate University for Advanced Studies, Japan & The Institute of Statistical Mathematics, Japan)*

In this volume very simplified models are introduced to understand the random sequential packing models mathematically. The 1-dimensional model is sometimes called the Parking Problem, which is known by the pioneering works by Flory (1939), Renyi (1958), Dvoretzky and Robbins (1962). To obtain a 1-dimensional packing density, distribution of the minimum of gaps, etc., the classical analysis has to be studied. The packing density of the general multi-dimensional random sequential packing of cubes (hypercubes) makes a well-known unsolved problem. The experimental analysis is usually applied to the problem. This book introduces simplified multi-dimensional models of cubes and torus, which keep the character of the original general model, and introduces a combinatorial analysis for combinatorial modelings.

256pp	**Jan 2011**	
978-981-4307-83-3	**US$80**	**£50**
978-981-4307-84-0(ebook)	**US$104**	

Frontiers of Statistics

HIGH-DIMENSIONAL DATA ANALYSIS

Vol. 2

edited by **Tony Cai** *(University of Pennsylvania, USA)* & **Xiaotong Shen** *(University of Minnesota, USA)*

Over the last few years, significant developments have been taking place in high-dimensional data analysis, driven primarily by a wide range of applications in many fields such as genomics and signal processing. In particular, substantial advances have been made in the areas of feature selection, covariance estimation, classification and regression. This book intends to examine important issues arising from high-dimensional data analysis to explore key ideas for statistical inference and prediction. The book will appeal to graduate students and new researchers interested in the plethora of opportunities available in high-dimensional data analysis.

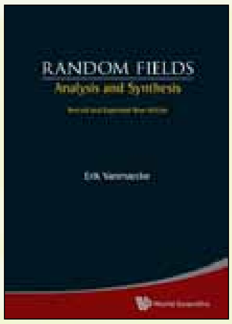
320pp	**Dec 2010**	
978-981-4324-85-4	**US$85**	**£53**
978-981-4324-86-1(ebook)	**US$111**	

Bestselling Textbook

RANDOM FIELDS

Analysis and Synthesis
Revised and Expanded New Edition

by **Erik Vanmarcke** *(Princeton University, USA)*



"The author explains in a clear and thorough way the intricacies of random field modeling. Every time I pick up the book, I discover something new and exciting. I especially like its lucid coverage of the effects of local averaging, which provides an excellent basis for describing the world around us."

Gordon A Fenton
Professor of Applied Mathematics
Dalhousie University, Canada

Contents: Introduction; Fundamentals of Analysis of Random Fields; Second-Order Analysis of Homogeneous Random Fields; Spectral Parameters, Level Crossings, and Extremes; Local Average Processes on the Line; Two-Dimensional Local Average Processes; Multi-Dimensional Local Average Processes; Overview of Findings.

364pp	**Jul 2010**	
978-981-256-297-5	**US$85**	**£53**
978-981-256-353-8(pbk)	**US$48**	**£30**

Bestselling Textbook

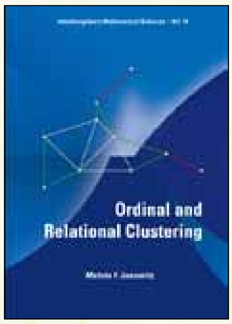
Interdisciplinary Mathematical Sciences

ORDINAL AND RELATIONAL CLUSTERING

Vol. 10

(With CD-ROM)

by **Melvin F Janowitz** *(Rutgers University, USA)*



"Unlike many other books on this subject, this one is written by a mathematician from a mathematical standpoint. The approach is innovative, as the book treats dissimilarities that take values in partially ordered sets ... This book provides a nice mathematical model for clustering with posets. It includes many examples and algorithms and presents many years of work for the first time in a single source with enough background to be extremely useful for mathematicians and computer scientists alike. This book should be read by anyone doing clustering who is even remotely interested in a mathematical model of what the algorithms do and why they work. It belongs in every library and makes for an ideal text for beginning graduate students (or even advanced undergraduates) who want to explore an interdisciplinary topic with a wealth of applications."

Mathematical Reviews

200pp	**May 2010**	
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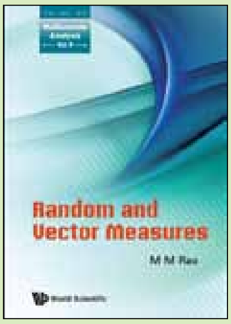

Contents: Introduction and Motivation; Second Order Random Measures and Representations; Random Measures Admitting Controls; Random Measures in Hilbert Space: Specialized Analysis; More on Random Measures and Integrals; Martingale Type Measures and Their Integrals; Multiple Random Measures and Integrals; Vector Measures and Integrals; Random and Vector Multimeasures.

552pp **Aug 2011**
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336pp **Apr 2001**
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Mathematical Reviews

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216pp **Oct 1998**
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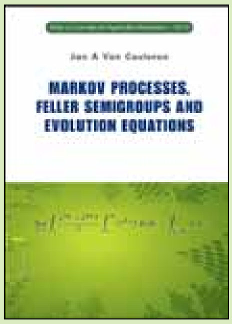
The book provides a systemic treatment of time-dependent strong Markov processes with values in a Polish space. It describes its generators and the link with stochastic differential equations in infinite dimensions. In a unifying way, where the square gradient operator is employed, new results for backward stochastic differential equations and long-time behavior are discussed in depth. The book also establishes a link between propagators or evolution families with the Feller property and time-inhomogeneous Markov processes. This mathematical material finds its applications in several branches of the scientific world, among which are mathematical physics, hedging models in financial mathematics, and population models.



824pp **Nov 2010**
978-981-4322-18-8 **US$148** **£92**
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424pp **Oct 2010**
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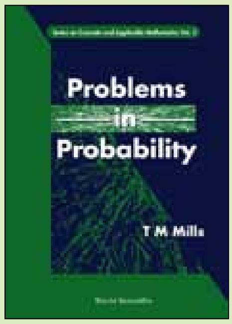
MAA Online Book Review



"The solutions are detailed and complete rather than merely answers … The bibliography, containing about 70 references, includes many well-known and standard texts and several important historical works … Problems in Probability is a welcome and affordable addition to the toolbox of resources for instructors of undergraduate probability."

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324pp	**Nov 2010**	
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Short Book Reviews

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Zentralblatt Maths

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978-981-4282-52-9	**US$111**	**£76**
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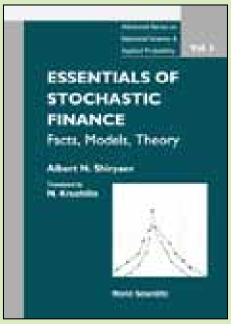
Journal of Applied Mathematics and Stochastic Analysis



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Mathematics Abstracts

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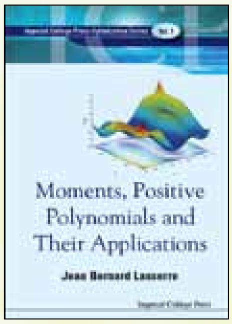
Mathematical Reviews



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272pp	**Apr 2009**	
978-981-4273-70-1	**US$70**	**£46**
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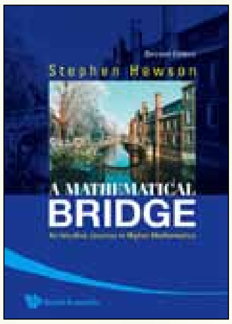
Zentralblatt MATH



Contents: Mathematics; Numbers; Analysis; Algebra and Geometry; Calculus and Differential Equations; Probability; Theoretical Physics; ***Appendices:*** The Historical Development of Mathematics; Great Mathematicians and Their Achievements; Exercises for the Reader; Basic Mathematical Background; Further Reading; Dictionary of Symbols.

672pp	Jan 2009	
978-981-283-407-2	US$110	£61
978-981-283-408-9(pbk)	US$65	£36

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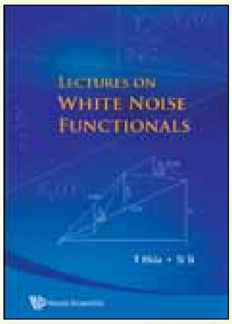
Si Si *(Aichi Prefectural University, Japan)*

"This monograph is a valuable guide to the world of white noise analysis originated by Hida. It is full of ideas, essentials and philosophy about why analysis based upon the white noise is needed, what the white noise functionals are, how to handle stochastic processes on an applicational basis to quantum physics, how to find a natural way to formulate the infinite-dimensional harmonic analysis, etc. This book is recommendable not only to ambitious graduate students in probability or applied analysis in a broad sense, but also to researchers who work on infinite-dimensional analysis or mathematical physics, as well as to any readers who are interested in white noise analysis."



Mathematical Reviews

280pp	Jul 2008	
978-981-256-052-0	US$137	£90

STOCHASTIC PROCESSES
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Most introductory textbooks on stochastic processes which cover standard topics such as Poisson process, Brownian motion, renewal theory and random walks deal inadequately with their applications. Written in a simple and accessible manner, this book addresses that inadequacy and provides guidelines and tools to study the applications. The coverage includes research developments in Markov property, martingales, regenerative phenomena and Tauberian theorems, and covers measure theory at an elementary level.

Contents: A Review of Probability Distributions and Their Properties; Definition and Characteristics of a Stochastic Process; Some Important Classes of Stochastic Processes; Stationary Processes; The Brownian Motion and the Poisson Process: Lévy Processes; Renewal Processes and Random Walks; Martingales in Discrete Time; Branching Processes; Regenerative Phenomena; Markov Chains; Tauberian Theorems; Some Asymptotic Relations.

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Contents: Measure Spaces; The Lebesgue Integral; Differentiable and Integration; The Classical Banach Spaces; Extension of Additive Set Functions to Measures; Measure and Integration on the Euclidean Space; Hausdorff Measures on the Euclidean Space.

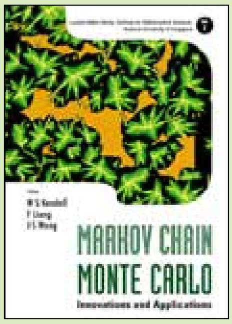
760pp	Jun 2006	
978-981-256-653-9	US$171	£113
978-981-256-654-6(pbk)	US$93	£61

LECTURE NOTES SERIES, INSTITUTE FOR MATHEMATICAL SCIENCES, NATIONAL UNIVERSITY OF SINGAPORE

MARKOV CHAIN MONTE CARLO
Vol. 7

Innovations and Applications
by **W S Kendall** *(University of Warwick, UK)*, **F Liang** *(Texas A&M University, USA)* & **J-S Wang** *(National University of Singapore)*

Markov Chain Monte Carlo (MCMC) originated in statistical physics, but has spilled over into various application areas, leading to a corresponding variety of techniques and methods. That variety stimulates new ideas and developments from many different places, and there is much to be gained from cross-fertilization. This book presents five expository essays by leaders in the field, drawing from perspectives in physics, statistics and genetics, and showing how different aspects of MCMC come to the fore in different contexts. The essays derive from tutorial lectures at an interdisciplinary program at the Institute for Mathematical Sciences, Singapore, which exploited the exciting ways in which MCMC spreads across different disciplines.



240pp	Nov 2005	
978-981-256-427-6	US$128	£84

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Vol. 4

by **A D Barbour** *(University of Zürich, Switzerland)*
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Mathematical Reviews

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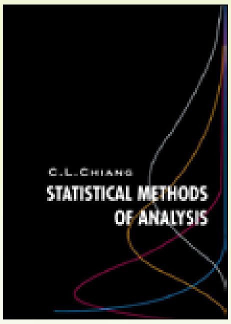

Acta Scientiarum Mathematicarum

This textbook systematically presents fundamental methods of statistical analysis: from probability and statistical distributions, through basic concepts of statistical inference, to a collection of methods of analysis useful for scientific research. It is rich in tables, diagrams, and examples.

656pp	**Oct 2003**	
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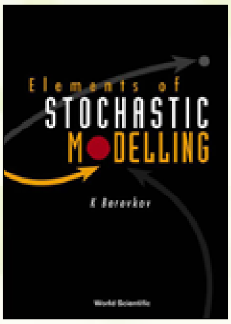

The American Statistician

"A fine pedagogical touch and a good sense of proportion make the text extremely well balanced. A very intelligent book indeed."

Acta Scientiarum Mathematicarum

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356pp	**Feb 2003**	
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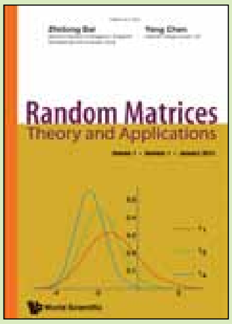
240pp	**Oct 2000**	
978-1-86094-231-0	**US$69**	**£45**

Random Matrices: Theory and Applications

Print / Online ISSN: 2010-3263 / 2010-3271
www.worldscinet.com/rmta

Forthcoming

Aims & Scope



This journal will publish high quality papers on all aspects regarding random matrices, both theory and applications. These areas will include, but not be limited to, spectral theory, new ensembles (those not generally considered in classical random matrix theory), and applications to a wide variety of areas, including high dimensional data analysis, wireless communications, finance, and economics. Only papers that contain original, innovative and correct results, which deepen our understanding on the theory of random matrices and its applications, will be considered for publications.

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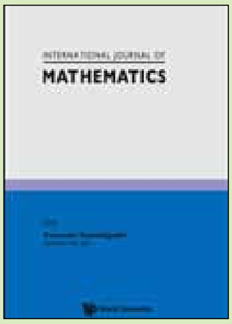
International Journal of Mathematics (IJM)

Print / Online ISSN: 0129-167X / 1793-6519
http://www.worldscinet.com/ijm



This journal publishes original papers in mathematics in general, but giving a preference to those in the areas of mathematics represented by the editorial board. The journal has been published monthly except in June and December to bring out new results without delay. Occasionally, expository papers of exceptional value may also be published. The first issue appeared in March 1990.

Chair

Yasuyuki Kawahigashi, *University of Tokyo, Japan*

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Journal of the American Statistical Association

This book provides a multi-level introduction to Bayesian reasoning (as opposed to "conventional statistics") and its applications to data analysis. The basic ideas of this "new" approach to the quantification of uncertainty are presented using examples from research and everyday life.

352pp **Jun 2003**
978-981-238-356-3 **US$128** **£84**
978-981-277-551-1(ebook) **US$166**

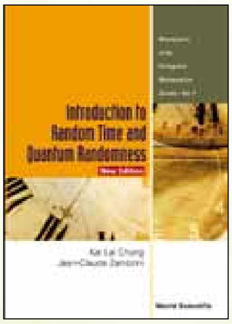
Monograph of the Portuguese Mathematical Society

INTRODUCTION TO RANDOM TIME AND QUANTUM RANDOMNESS

Vol. 1

New Edition

by **Kai Lai Chung** *(Stanford University, USA)* & **Jean-Claude Zambrini** *(Universidade de Lisboa, Portugal)*



"I recommend them to all readers who take pleasure from an informal style of presentation, where an introductory description to rather advanced probabilistic concepts is ornamented with personal memories, anecdotes and reflections plus harsh comments on competing or outdated viewpoints."

Zentralblatt MATH

"This is a quite unusual and highly stimulating book, written by two masters of their fields. While directed primarily towards talented, broadminded and ambitious younger students of stochastics or mathematical physics, many more senior researchers will find points of considerable interest in the expositions."

Short Book Reviews

224pp **May 2003**
978-981-238-388-4 **US$113** **£75**
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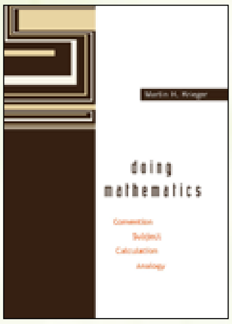

"Krieger has made some effort to accommodate different levels of readers, for example structuring his text so that lay readers are alerted to sections that can be safely skipped and paragraphs that provide nontechnical summaries."

Mathematical Association of America

"This is the first time I have seen a mathematician deal substantively with the issue of mathematics as culturally based, and he does it superbly and mathematically … Although this book is no easy read, it is well worth the effort, and I am sure it will stimulate and inform, perhaps even surprise, the most sophisticated of mathematical readers. It is refreshing to find such a book being published."

Mathematical Reviews

472pp **Jan 2003**
978-981-238-200-9 **US$157** **£104**
978-981-238-206-1(pbk) **US$70** **£46**
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Mathematical Reviews

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516pp **Nov 2001**
978-1-86094-293-8 **US$151** **£100**
978-1-86094-974-6(ebook) **US$196**

CORRELATION AND DEPENDENCE

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Mathematical Reviews

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236pp **Apr 2001**
978-1-86094-264-8 **US$88** **£58**
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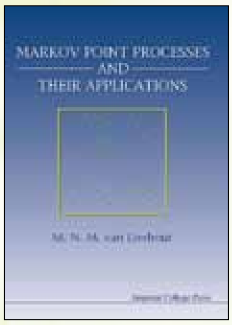
(Centrum voor Wiskunde en Informatica, The Netherlands)



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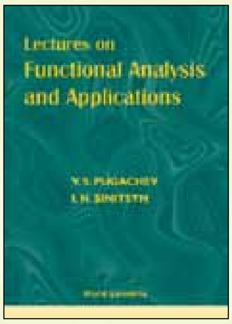

This book is intended for those having only a moderate background in mathematics, who need to increase their mathematical knowledge for development in their areas of work and to read the related mathematical literature. The material covered, which includes practically all the information on functional analysis that may be necessary for those working in various areas of applications of mathematics, as well as the simplicity of presentation, differentiates this book from others. About 300 examples and more than 500 problems are provided to help readers understand and master the theories presented. The list of references enables readers to explore those topics in which they are interested, and gather further information about applications used as examples in the book.

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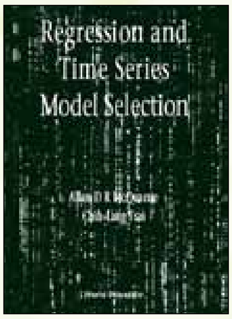

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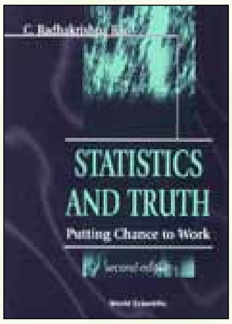

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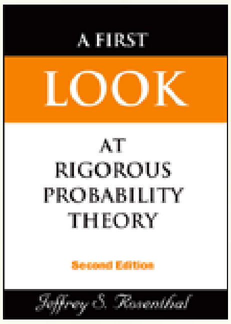

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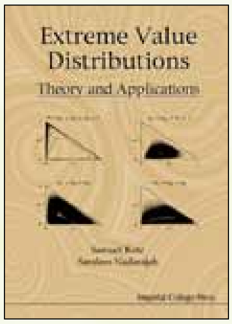

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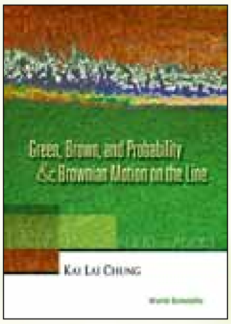

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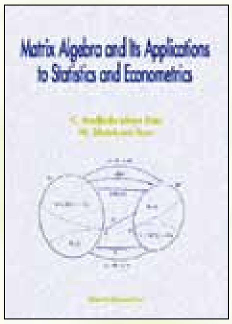

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Journal of the American Statistical Association

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