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Spring 2025



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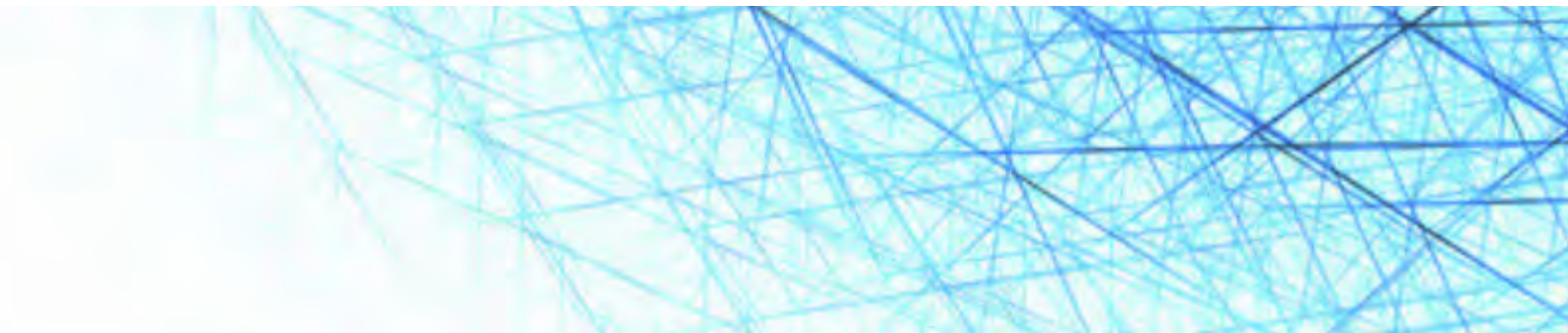


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## Empirical Research in Accounting

### Tools and Methods



**Ian D. Gow** University of Melbourne, Australia, **Tongqing Ding** University of Melbourne, Australia

*Series: Chapman and Hall/CRC Series on Statistics in Business and Economics*

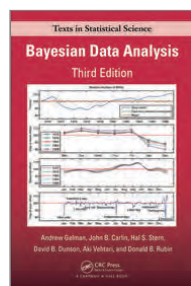
This textbook provides the foundation for a course that takes PhD students in empirical accounting research from the very basics of statistics, data analysis, and causal inference up to the point at which they conduct their own research. Starting with foundations in statistics, econometrics, causal inference, and institutional knowledge of accounting and finance, the book moves on to an in-depth coverage of the core papers in capital market research. Readers of the book will develop deep data analysis skills using modern tools. Extensive replication and simulation analysis is included throughout.

Chapman & Hall  
December 2024 : 592pp  
Hb: 978-1-032-58650-2 : **£100**  
eBook: 978-1-003-45623-0

\* For full contents and more information, visit: [www.routledge.com/9781032586502](http://www.routledge.com/9781032586502)

3RD EDITION

## Bayesian Data Analysis



**Andrew Gelman** Department of Statistics, Columbia University, New York, USA, **John B. Carlin** The Royal Children's Hospital, Parkville, Victoria, Australia, **Hal S. Stern** University of California, Irvine, USA, **David B. Dunson** Duke University, Durham, North Carolina, USA, **Aki Vehtari** Aalto University, Finland, **Donald B. Rubin** Harvard University, Cambridge, Massachusetts, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

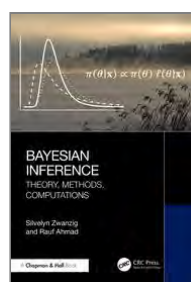
Winner of the 2016 De Groot Prize from the International Society for Bayesian Analysis Now in its third edition, this classic book continues to take an applied approach to analysis using up-to-date Bayesian methods. Along with new and revised software code, this edition includes four new chapters on nonparametric modeling, updates the discussion of cross-validation and predictive information criteria, and improves convergence monitoring and effective sample size calculations for iterative simulation. It also covers weakly informative priors, boundary-avoiding priors, Hamiltonian Monte Carlo, variational Bayes, and expectation propagation. Data sets and other materials are available online.

Chapman & Hall  
November 2013 : 675pp  
Hb: 978-1-439-84095-5 : **£79.99**  
eBook: 978-0-429-11307-9

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## Bayesian Inference

Theory, Methods, Computations



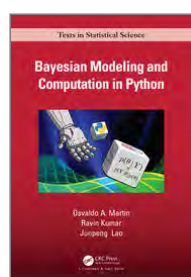
**Silvelyn Zwanig** Uppsala University, Sweden, **Rauf Ahmad**

Bayesian Inference: Theory, Methods, Computations provides a comprehensive coverage of the fundamentals of Bayesian inference from all important perspectives, namely theory, methods and computations. The book is primarily aimed at first or second semester master students, where parts of the book can also be used at Ph.D. level or by research community at large. The emphasis is on exact cases. However, to gain further insight into the core concepts, an entire chapter is dedicated to computer intensive techniques. Selected chapters and sections of the book can be used for a one-semester course on Bayesian statistics.

Chapman & Hall  
July 2024 : 346pp  
Pb: 978-1-032-11809-3 : **£63.99**  
Hb: 978-1-032-10949-7 : **£165**  
eBook: 978-1-003-22162-3

\* For full contents and more information, visit: [www.routledge.com/9781032118093](http://www.routledge.com/9781032118093)

## Bayesian Modeling and Computation in Python



**Osvaldo A. Martin** CONICET and Aalto University, **Ravin Kumar**, **Junpeng Lao**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Bayesian Modeling and Computation in Python will enable readers to grasp the fundamental assumptions behind Bayesian statistical methods and how to apply them to a wide array of data analysis problems. The book will provide a clear path from elementary statistical ideas to advanced ones and will also provide a bridge between statistics and probabilistic machine learning ideas always with a focus on effective application of Bayesian models.

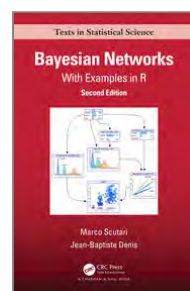
Chapman & Hall  
December 2021 : 420pp  
Hb: 978-0-367-89436-8 : **£76.99**  
eBook: 978-1-003-01916-9

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2ND EDITION

## Bayesian Networks

With Examples in R



**Marco Scutari** Istituto Dalle Molle, **Jean-Baptiste Denis** INRA

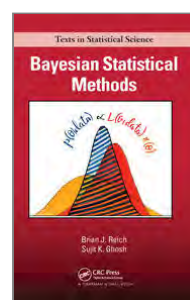
*Series: Chapman & Hall/CRC Texts in Statistical Science*

The book introduces Bayesian networks using a hands-on approach, through simple yet meaningful examples. Discrete Bayesian networks are described first (Chapter 2), followed by Gaussian Bayesian networks (Chapter 3). Mixed networks (which include arbitrary random variables, and typically mix continuous and discrete ones) are covered as well (Chapter 4). These chapters explain the whole process of Bayesian network modelling, from structure learning to parameter learning to inference. All steps in learning are illustrated with R code.

Chapman & Hall  
July 2021 : 274pp  
Hb: 978-0-367-36651-3 : **£84.99**  
eBook: 978-0-429-34743-6

\* For full contents and more information, visit: [www.routledge.com/9780367366513](http://www.routledge.com/9780367366513)

## Bayesian Statistical Methods



**Brian J. Reich**, **Sujit K. Ghosh**

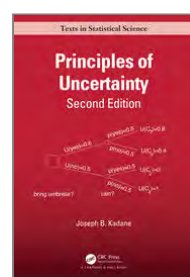
Bayesian Statistical Methods is designed to provide a good balance of theory and computational methods that will appeal to students and practitioners with minimal mathematical and statistical background and no experience in Bayesian statistics to students and practitioners looking for advanced methodologies. Chapters 1-4 introduce Bayesian concepts at an elementary level. The second part of the book covers advanced topics such as high-dimensional parameter spaces, dependent data models, models for data irregularities and priors on infinite dimensional parameter spaces.

Chapman & Hall  
June 2021 : 288pp  
Pb: 978-1-032-09318-5 : **£39.99**  
Hb: 978-0-815-37864-8 : **£84.99**  
eBook: 978-0-429-20229-2

\* For full contents and more information, visit: [www.routledge.com/9781032093185](http://www.routledge.com/9781032093185)

2ND EDITION

## Principles of Uncertainty



**Joseph B. Kadane** Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

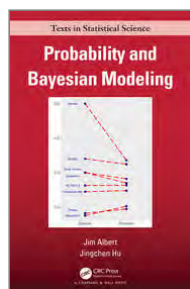
Like the De Groot winning first edition, the second edition of Principles of Uncertainty is an accessible, comprehensive guide to the theory of Bayesian Statistics written in an appealing, inviting style, and packed with interesting examples. It presents an accessible, comprehensive guide to the subjective Bayesian approach which has played a pivotal role in game theory, economics, and the recent boom in Markov Chain Monte Carlo methods. This new edition has been updated throughout and features a new chapter on Nonparametric Bayesian Methods.

Chapman & Hall  
May 2024 : 522pp  
Pb: 978-0-367-53973-3 : **£44.99**  
Hb: 978-1-138-05273-4 : **£105**  
eBook: 978-1-315-16756-5

\* For full contents and more information, visit: [www.routledge.com/9780367539733](http://www.routledge.com/9780367539733)



## Probability and Bayesian Modeling



**Jim Albert** Emeritus Professor at Bowling Green State Uni., **Jingchen Hu**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Bayesian statistics has been advancing in all aspects (theoretically, methodologically and computationally) in recent years. Based on an intuitive interpretation and understanding of probability, Bayesian learning provides a natural framework for students to think and solve scientific problems. This book provides an introduction to Bayesian analysis for undergraduate students with calculus, statistics and computational background.

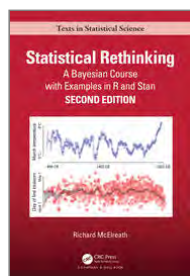
Chapman & Hall  
December 2019 : 552pp  
Hb: 978-1-138-49256-1 : **£84.99**  
eBook: 978-1-351-03014-4

\* For **full contents** and more information, visit: [www.routledge.com/9781138492561](http://www.routledge.com/9781138492561)

2ND EDITION

## Statistical Rethinking

A Bayesian Course with Examples in R and STAN



**Richard McElreath** Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

*Series: Chapman & Hall/CRC Texts in Statistical Science*

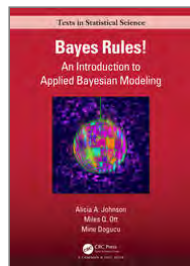
The very popular Statistical Rethinking: A Bayesian Course with Examples in R and Stan, Second Edition builds readers' knowledge of and confidence in statistical modeling. Reflecting the need for even minor programming in today's model-based statistics, the book pushes readers to perform step-by-step calculations that are usually automated. This unique computational approach ensures that readers understand enough of the details to make reasonable choices and interpretations in their own modeling work.

Chapman & Hall  
March 2020 : 612pp  
Hb: 978-0-367-13991-9 : **£76.99**  
eBook: 978-0-429-02960-8

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## Bayes Rules!

An Introduction to Applied Bayesian Modeling



**Alicia A. Johnson**, **Miles Q. Ott** Smith College, Northampton, MA 01063, **Mine Dogucu** Denison university, OH, USA

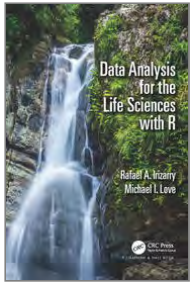
*Series: Chapman & Hall/CRC Texts in Statistical Science*

An engaging, sophisticated, and fun introduction to the field of Bayesian Statistics, Bayes Rules! An Introduction to Bayesian Modeling with R brings the power of modern Bayesian thinking, modeling, and computing to a broad audience. In particular, it is an ideal resource for advanced undergraduate Statistics students and practitioners with comparable experience. Bayes Rules! empowers readers to weave Bayesian approaches into their everyday practice.

Chapman & Hall  
March 2022 : 544pp  
Pb: 978-0-367-25539-8 : **£61.99**  
Hb: 978-1-032-19159-1 : **£175**  
eBook: 978-0-429-28834-0

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## Data Analysis for the Life Sciences with R



**Rafael A. Irizarry** Dept. of Biostatistics, Harvard School of Public Health, Boston, Massachusetts, USA, **Michael I. Love** Dept. of Biostatistics, Harvard School of Public Health, Boston, Massachusetts, USA

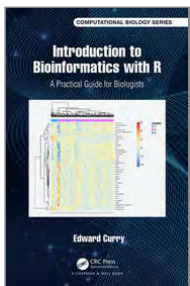
This book covers several of the statistical concepts and data analytic skills needed to succeed in data-driven life science research. The authors proceed from relatively basic concepts related to computed p-values to advanced topics related to analyzing high-throughput data. They include the R code that performs this analysis and connect the lines of code to the statistical and mathematical concepts explained.

Chapman & Hall  
July 2016 : 376pp  
Pb: 978-1-498-77567-0 : **£47.99**  
Hb: 978-1-138-40720-6 : **£180**  
eBook: 978-1-315-36700-2

\* For full contents and more information, visit: [www.routledge.com/9781498775670](http://www.routledge.com/9781498775670)

## Introduction to Bioinformatics with R

A Practical Guide for Biologists



**Edward Curry**

*Series: Chapman & Hall/CRC Computational Biology Series*

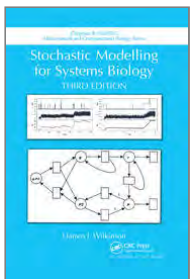
This book has been developed over years of training biological scientists and clinicians to analyse the large datasets available in their cancer research projects. Through the entire book, theoretical explanations are presented alongside step-by-step instructions for carrying out a number of widely-applicable data analysis tasks using freely available software. This book guides the reader through the basic principles of exploratory analysis and hypothesis testing in high-dimensional datasets, and the practicalities of installing statistical computing software and using this to handle different types of data tables.

Chapman & Hall  
November 2020 : 310pp  
Pb: 978-1-138-49571-5 : **£54.99**  
Hb: 978-1-138-49895-2 : **£150**  
eBook: 978-1-351-01531-8

\* For full contents and more information, visit: [www.routledge.com/9781138495715](http://www.routledge.com/9781138495715)

3RD EDITION

## Stochastic Modelling for Systems Biology, Third Edition



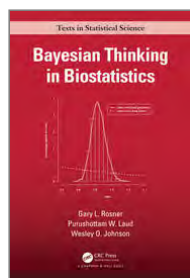
**Darren J. Wilkinson**

Having been thoroughly updated to reflect this, this third edition covers everything necessary for a good appreciation of stochastic kinetic modelling of biological networks in the systems biology context. New methods and applications are included in the book, and the use of R for practical illustration of the algorithms has been greatly extended. There is a whole new chapter on spatially extended systems, and the statistical inference chapter has also been extended with new methods, including approximate Bayesian computation (ABC). The book is now supplemented by an additional software library, written in Scala, described in a new appendix to the book.

Chapman & Hall  
September 2020 : 404pp  
Pb: 978-0-367-65693-5 : **£47.99**  
Hb: 978-1-138-54928-9 : **£91.99**  
eBook: 978-1-351-00091-8

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## Bayesian Thinking in Biostatistics



**Gary L. Rosner** Johns Hopkins Medicine, Baltimore, Maryland, USA, **Purushottam W. Laud**, **Wesley O. Johnson** UC Irvine

*Series: Chapman & Hall/CRC Texts in Statistical Science*

With discussions on many recent developments in Bayesian methodologies, *Bayesian Thinking in Biostatistics* considers statistical issues in biomedical research, allowing for greater collaborations between biostatisticians and biomedical researchers. The text presents biostatistical methods from a Bayesian perspective. It includes an overview of Bayesian statistics, a discussion of rates and proportions with applications in clinical and other population-based studies, recent developments in clinical trial design, methods for evaluating censored data and diagnostic tests, and problems resulting from multiple comparisons.

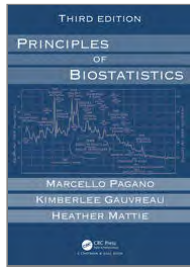
Chapman & Hall  
March 2021 : 621 pp  
Hb: 978-1-439-80008-9 : £105  
eBook: 978-1-439-80010-2

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3RD EDITION

# Principles of Biostatistics



**Marcello Pagano , Kimberlee Gauvreau , Heather Mattie** Harvard T.H. Chan School of Public Health, MA, USA

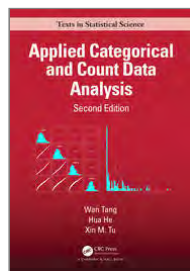
This book is a concepts-based introduction to statistical procedures that prepares public health, medical, and life sciences students to conduct and evaluate research. With an engaging writing style and helpful graphics, the emphasis is on concepts over formulas or rote memorization. Thoroughly revised and updated, this third edition includes a new chapter introducing the basic principles of Study Design, as well as new sections on sample size calculations for two-sample tests on means and proportions, the Kruskal-Wallis test, and the Cox proportional hazards model. It also includes additional review exercises in each chapter.

Chapman & Hall  
June 2022 : 620pp  
Hb: 978-0-367-35580-7 : **£76.99**  
eBook: 978-0-429-34051-2

\* For full contents and more information, visit: [www.routledge.com/9780367355807](http://www.routledge.com/9780367355807)

2ND EDITION

## Applied Categorical and Count Data Analysis



**Wan Tang** Tulane University, New Orleans, LA, **Hua He** Tulane University, **Xin M. Tu** University of California-San Diego

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This second edition explains how to perform the statistical analysis of discrete data, including categorical and count outcomes. It covers classic concepts and popular topics, such as logistic regression models, along with modern areas including models for zero-modified count outcomes. R, SAS, SPSS, and Stata programming codes are provided for all the examples. Designed for a one-semester course for graduate and senior undergraduate students in biostatistics, this self-contained text is also suitable as a self-learning guide for biomedical and psychosocial researchers. It will help readers analyze data with discrete variables in a wide range of research fields.

Chapman & Hall

April 2023 : 400pp

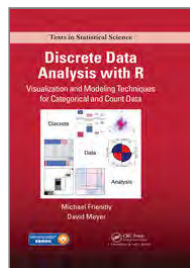
Hb: 978-0-367-56827-6 : **£76.99**

eBook: 978-1-003-10981-5

\* For full contents and more information, visit: [www.routledge.com/9780367568276](http://www.routledge.com/9780367568276)

## Discrete Data Analysis with R

Visualization and Modeling Techniques for Categorical and Count Data



**Michael Friendly** York University, Toronto, Ontario, Canada, **David Meyer** UAS Technikum Wien, Austria

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This text presents an applied treatment of modern methods for the analysis of categorical data, both discrete response data and frequency data. It explains how to use graphical methods for exploring data, spotting unusual features, visualizing fitted models, and presenting results. Along with describing the necessary statistical theory, the authors illustrate the practical application of the techniques to a large number of substantive problems. The data sets and R code are available on a supplementary website.

Chapman & Hall

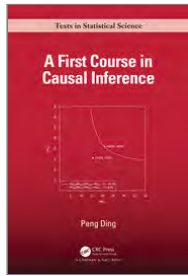
December 2015 : 564pp

Hb: 978-1-498-72583-5 : **£86.99**

eBook: 978-0-429-15443-0

\* For full contents and more information, visit: [www.routledge.com/9781498725835](http://www.routledge.com/9781498725835)

## A First Course in Causal Inference



**Peng Ding** University of California Berkeley, U.S.A

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This textbook, based on the author's course on causal inference at UC Berkeley taught over the past seven years, only requires basic knowledge of probability theory, statistical inference, and linear and logistic regressions. It assumes minimal knowledge of causal inference, and reviews basic probability and statistics in the appendix. It covers causal inference from a statistical perspective and includes examples and applications from biostatistics and econometrics. This book is suitable for an advanced undergraduate or graduate-level course on causal inference, or postgraduate and PhD-level course in statistics and biostatistics departments.

Chapman & Hall  
July 2024 : 448pp  
Hb: 978-1-032-75862-6 : **£64.99**  
eBook: 978-1-003-48408-0

\* For full contents and more information, visit: [www.routledge.com/9781032758626](http://www.routledge.com/9781032758626)

## Causal Inference

What If



**Miguel A. Hernan** Harvard School of Public Health, Boston, Massachusetts, USA, **James M. Robins** Harvard School of Pub Health, Boston, Massachusetts, USA

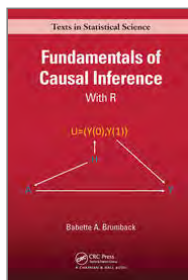
The application of causal inference methods is growing exponentially in fields that deal with observational data. Written by pioneers in the field, this practical book presents an authoritative yet accessible overview of the methods and applications of causal inference. With a wide range of detailed, worked examples using real epidemiologic data as well as software for replicating the analyses, the text provides a thorough introduction to the basics of the theory for non-time-varying treatments and the generalization to complex longitudinal data.

CRC Press  
July 2025 : 312pp  
Hb: 978-1-420-07616-5 : **£41.99**

\* For full contents and more information, visit: [www.routledge.com/9781420076165](http://www.routledge.com/9781420076165)

## Fundamentals of Causal Inference

With R



**Babette A. Brumback**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Explains and relates different methods of confounding adjustment in terms of potential outcomes and graphical models, including standardization, difference-in-differences estimation, the front-door method, instrumental variables estimation, and propensity score methods.

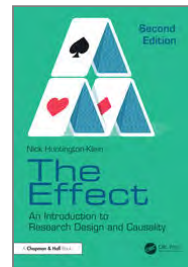
Chapman & Hall  
November 2021 : 248pp  
Hb: 978-0-367-70505-3 : **£58.99**  
eBook: 978-1-003-14667-4

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2ND EDITION

## The Effect

An Introduction to Research Design and Causality



**Nick Huntington-Klein**

This book is about research design, specifically concerning research that uses non-experimental data to figure out whether one thing causes another. It introduces the concept of identification thoroughly and clearly and discusses it as a process of trying to isolate variation that has a causal interpretation. Concepts are demonstrated with a heavy emphasis on graphical intuition and the question of what we do to data. When we "add a control variable" what does that actually do? The second edition features a new chapter on partial identification, updated materials, methods, and writing throughout, and additional materials for help navigating the book or in using the book in teaching.

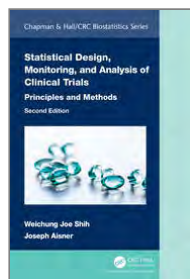
Chapman & Hall  
April 2025 : 686pp  
Pb: 978-1-032-58022-7 : **£39.99**  
Hb: 978-1-032-58194-1 : **£120**

\* For full contents and more information, visit: [www.routledge.com/9781032580227](http://www.routledge.com/9781032580227)

2ND EDITION

## Statistical Design, Monitoring, and Analysis of Clinical Trials

Principles and Methods



**Weichung Joe Shih** Rutgers U School of Public Health, USA, **Joseph Aisner** Rutgers U Robert Wood Johnson Medical School, USA

*Series: Chapman & Hall/CRC Biostatistics Series*

This book concentrates on the biostatistics component of clinical trials. This new edition is updated throughout and includes three new chapters. Developed from the authors' courses taught to public health and medical students, residents, and fellows during the past 15 years, the text shows how biostatistics in clinical trials is an integration of many fundamental scientific principles and statistical methods. The book begins with ethical and safety principles, core trial design concepts, the principles and methods of sample size and power calculation, and analysis of covariance and stratified analysis.

Chapman & Hall

October 2021 : 404pp

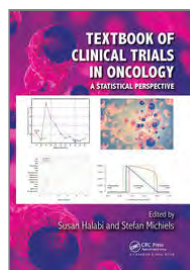
Hb: 978-0-367-77244-4 : **£84.99**

eBook: 978-1-003-17652-7

\* For full contents and more information, visit: [www.routledge.com/9780367772444](http://www.routledge.com/9780367772444)

## Textbook of Clinical Trials in Oncology

A Statistical Perspective



*Edited by* **Susan Halabi**, **Stefan Michiels**

This is a textbook on the design and analysis of cancer clinical trials. It opens with a discussion of the choice of endpoints before moving onto discuss various types of trials across all phases of study, including basket trials, non-inferiority trials and multi-arm trials. It then covers some methodological topics, including missing data and competing risks, before several chapters cover aspects of personalized medicine. It includes contributions from various leading teachers and researchers, all thoroughly edited to ensure it is consistent in terms of level and style. It has lots of examples and case studies, and includes exercises to enable use as a course text or for self-study.

Chapman & Hall

December 2020 : 644pp

Pb: 978-0-367-72957-8 : **£49.99**

Hb: 978-1-138-08377-6 : **£135**

eBook: 978-1-315-11208-4

\* For full contents and more information, visit: [www.routledge.com/9780367729578](http://www.routledge.com/9780367729578)

3RD EDITION

## Probability and Statistics for Computer Scientists



**Michael Baron** American University, Washington, DC

Presenting probability and statistical methods, simulation techniques, and modeling tools, this textbook helps students solve problems and make optimal decisions in uncertain conditions, select stochastic models, compute probabilities and forecasts, and evaluate performance of computer systems and networks. This third edition adds coverage of R including code for data analysis examples in the book.

Chapman & Hall  
June 2019: 486pp  
Hb: 978-1-138-04448-7: £105  
eBook: 978-1-315-17228-6

\* For full contents and more information, visit: [www.routledge.com/9781138044487](http://www.routledge.com/9781138044487)

## Computer Intensive Methods in Statistics



**Silvelyn Zwanzig** Uppsala University, Sweden, **Behrang Mahjani** Uppsala University, Sweden

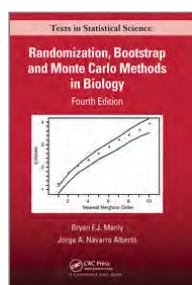
This textbook gives an overview of statistical methods that have been developed during the last years due to increasing computer use, including random number generators, Monte Carlo methods, Markov Chain Monte Carlo (MCMC) methods, Bootstrap, EM algorithms, SIMEX, variable selection, density estimators, kernel estimators, orthogonal and local polynomial estimators, wavelet estimators, splines, and model assessment. Computer Intensive Methods in Statistics is written for students at graduate level, but can also be used by practitioners.

Chapman & Hall  
December 2019 : 226pp  
Pb: 978-0-367-19423-9 : **£54.99**  
Hb: 978-0-367-19425-3 : **£150**  
eBook: 978-0-429-20232-2

\* For full contents and more information, visit: [www.routledge.com/9780367194239](http://www.routledge.com/9780367194239)

4TH EDITION

## Randomization, Bootstrap and Monte Carlo Methods in Biology



**Bryan F. J. Manly** University of Otago, Dunedin, New Zealand, **Jorge A. Navarro Alberto**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Modern computer-intensive statistical methods play a key role in solving many problems across a wide range of scientific disciplines. Like its bestselling predecessors, the fourth edition of Randomization, Bootstrap and Monte Carlo Methods in Biology illustrates a large number of statistical methods with an emphasis on biological applications. The focus is now on the use of randomization, bootstrapping, and Monte Carlo methods in constructing confidence intervals and doing tests of significance. It provides comprehensive coverage of computer-intensive applications, with datasets available online.

Chapman & Hall  
April 2022 : 358pp  
Pb: 978-0-367-51287-3 : **£45.99**  
Hb: 978-0-367-34994-3 : **£120**  
eBook: 978-0-429-32920-3

\* For full contents and more information, visit: [www.routledge.com/9780367512873](http://www.routledge.com/9780367512873)



2ND EDITION

## Big Data and Social Science

Data Science Methods and Tools for Research and Practice



Edited by **Ian Foster** University of Chicago, Illinois, USA, **Rayid Ghani** University of Chicago, Illinois, USA, **Ron S. Jarmin**, **Frauke Kreuter** University of Maryland, USA; University of Mannheim, Germany; and Institute for Employment Research, Germany, **Julia Lane** New York University; American Institutes for Research, USA

Series: *Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

This classroom-tested book fills a major gap in graduate- and professional-level data science and social science education. It can be used to train a new generation of social data scientists to tackle real-world problems and improve the skills and competencies of applied social scientists and public policy practitioners. It empowers you to use the massive and rapidly growing amounts of available data to interpret economic and social activities in a scientific and rigorous manner.

Chapman & Hall  
November 2020 : 412pp  
Pb: 978-0-367-56859-7 : **£54.99**  
Hb: 978-0-367-34187-9 : **£135**  
eBook: 978-0-429-32438-3

\* For full contents and more information, visit: [www.routledge.com/9780367568597](http://www.routledge.com/9780367568597)

## Data Science

A First Introduction



**Tiffany Timbers** University of British Columbia, **Trevor Campbell**, **Melissa Lee**

Series: *Chapman & Hall/CRC Data Science Series*

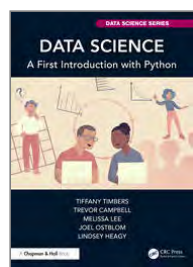
Data Science: A First Introduction focuses on using the R programming language in Jupyter notebooks to perform data manipulation and cleaning, create effective visualizations, and extract insights from data using classification, regression, clustering, and inference. The text emphasizes workflows that are clear, reproducible, and shareable, and includes coverage of the basics of version control. All source code is available online, demonstrating the use of good reproducible project workflows.

Chapman & Hall  
July 2022 : 456pp  
Pb: 978-0-367-52468-5 : **£49.99**  
Hb: 978-0-367-53217-8 : **£125**  
eBook: 978-1-003-08097-8

\* For full contents and more information, visit: [www.routledge.com/9780367524685](http://www.routledge.com/9780367524685)

## Data Science

A First Introduction with Python



**Tiffany Timbers** University of British Columbia, **Trevor Campbell**, **Melissa Lee** Assistant Professor, Uni of British Columbia, Canada, **Joel Ostblom**, **Lindsey Heagy** Professor, Uni of British Columbia, Canada

Series: *Chapman & Hall/CRC Data Science Series*

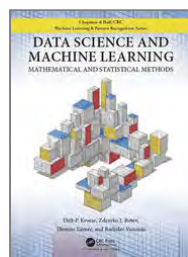
This book focuses on using the Python programming language in Jupyter notebooks to perform data manipulation and cleaning, create effective visualizations, and extract insights from data using classification, regression, clustering, and inference. The text emphasizes workflows that are clear, reproducible, and shareable, and includes coverage of the basics of version control. All source code is available online, demonstrating the use of good reproducible project workflows. The book is designed for learners from all disciplines with minimal prior knowledge of mathematics and programming. The authors have honed the material through years of experience teaching.

Chapman & Hall  
August 2024 : 452pp  
Pb: 978-1-032-57223-9 : **£58.99**  
Hb: 978-1-032-57219-2 : **£150**  
eBook: 978-1-003-43839-7

\* For full contents and more information, visit: [www.routledge.com/9781032572239](http://www.routledge.com/9781032572239)

## Data Science and Machine Learning

Mathematical and Statistical Methods



**Dirk P. Kroese**, **Zdravko Botev** University of New South Wales, **Thomas Taimre**, **Radislav Vaisman**

Series: *Chapman & Hall/CRC Machine Learning & Pattern Recognition*

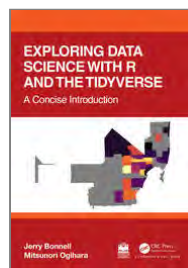
The purpose of this book is to provide an accessible, comprehensive textbook in data science and machine learning. The book will provide a solid basis in linear algebra, optimization, probability, and statistics. The main body will discuss the major topics in machine learning and data science: data manipulation, supervised and unsupervised learning, modelling of data, linear models, regression, classification, principal component analysis, deep learning, high dimensional data, regularization, kernel methods, support vector machines, etc.

Chapman & Hall  
November 2019 : 538pp  
Hb: 978-1-138-49253-0 : **£86.99**  
eBook: 978-0-367-81697-1

\* For full contents and more information, visit: [www.routledge.com/9781138492530](http://www.routledge.com/9781138492530)

## Exploring Data Science with R and the Tidyverse

A Concise Introduction



**Jerry Bonnell**, **Mitsunori Ogihara** University of Miami, Coral Gables, Florida, USA

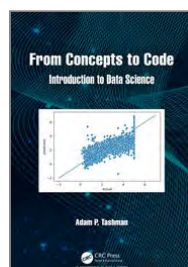
This book introduces the reader to data science using R and the tidyverse. No prerequisite knowledge is needed in college-level programming or mathematics (e.g., calculus or statistics). The book is self-contained so readers can immediately begin building data science workflows without needing to reference extensive amounts of external resources for onboarding. The contents are targeted for undergraduate students but are equally applicable to students at the graduate level and beyond. The book develops concepts using many real-world examples to motivate the reader. An exercise set is made available and designed for compatibility with automated grading tools for instructor use.

Chapman & Hall  
August 2023 : 492pp  
Pb: 978-1-032-34170-5 : **£76.99**  
Hb: 978-1-032-32950-5 : **£195**  
eBook: 978-1-003-32084-5

\* For full contents and more information, visit: [www.routledge.com/9781032341705](http://www.routledge.com/9781032341705)

## From Concepts to Code

Introduction to Data Science



**Adam P. Tashman**

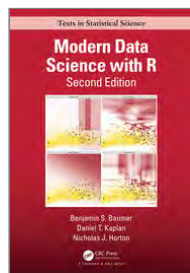
The breadth of problems that can be solved with data science is astonishing, and this book provides the required tools and skills to a broad audience. The reader takes a journey into the forms, uses, and abuses of data and models, and learns how to critically examine each step. Python coding and data analysis skills are built from the ground up, with no prior coding experience assumed. The necessary background in computer science, mathematics, and statistics is provided in an approachable manner. The book leverages content developed by the author for a full-year data science course suitable for advanced high school or early undergraduate students.

Chapman & Hall  
April 2024 : 385pp  
Pb: 978-1-032-51798-8 : **£58.99**  
Hb: 978-1-032-51795-7 : **£150**  
eBook: 978-1-003-40398-2

\* For full contents and more information, visit: [www.routledge.com/9781032517988](http://www.routledge.com/9781032517988)

2ND EDITION

## Modern Data Science with R



**Benjamin S. Baumer** Smith College, Northampton, MA,  
**Daniel T. Kaplan** Smith College, Northampton, MA,  
**Nicholas J. Horton** Amherst College, Amherst, MA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

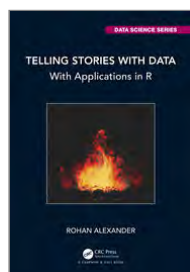
New data technologies and database systems facilitate scraping data and merging information from different sources and formats and restructuring data into a form suitable for analysis. State-of-the-art workflow and tools foster well-documented and reproducible analysis. Modern statistical methods allow the analyst to fit and assess models as well as to undertake supervised or unsupervised learning to extract information. Contemporary data science requires tight integration of these statistics, computing, data skills, mathematics, and communication. The text is intended for readers with some background in statistics and modest prior experience in scripting and programming.

Chapman & Hall  
 April 2021 : 650pp  
 Hb: 978-0-367-19149-8 : **£84.99**  
 eBook: 978-0-429-20071-7

\* For full contents and more information, visit: [www.routledge.com/9780367191498](http://www.routledge.com/9780367191498)

## Telling Stories with Data

With Applications in R



**Rohan Alexander**

*Series: Chapman & Hall/CRC Data Science Series*

The book equips students with the end-to-end skills needed to do data science. That means gathering, cleaning, preparing, and sharing data, then using statistical models to analyse data, writing about the results of those models, drawing conclusions from them, and finally, using the cloud to put a model into production, all done in a reproducible way. This book will achieve the goals by working through extensive case studies in terms of gathering and preparing data, and integrating ethics throughout. It is specifically designed around teaching how to write about the data and models, so aspects such as writing are explicitly covered.

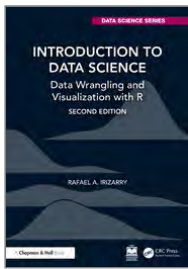
Chapman & Hall  
 July 2023 : 622pp  
 Hb: 978-1-032-13477-2 : **£76.99**  
 eBook: 978-1-003-22940-7

\* For full contents and more information, visit: [www.routledge.com/9781032134772](http://www.routledge.com/9781032134772)

2ND EDITION

## Introduction to Data Science

Data Wrangling and Visualization with R

**Rafael A. Irizarry***Series: Chapman & Hall/CRC Data Science Series*

Thoroughly revised and updated, this is the first book of the second edition of Introduction to Data Science: Data Wrangling and Visualization with R. It introduces skills that can help you tackle real-world data analysis challenges. No previous knowledge of R is necessary, although some experience with programming may be helpful. If you read and understand all the chapters and complete all the exercises in this book, and understand statistical concepts, you will be well-positioned to perform basic data analysis tasks and you will be prepared to learn the more advanced concepts and skills needed to become an expert.

Chapman & Hall  
August 2024 : 346pp  
Hb: 978-1-032-11655-6 : **£59.99**  
eBook: 978-1-003-22092-3

\* For full contents and more information, visit: [www.routledge.com/9781032116556](http://www.routledge.com/9781032116556)

## Statistical Foundations of Data Science



**Jianqing Fan** Princeton University, New Jersey, USA,  
**Runze Li** Pennsylvania State University, University Park, USA,  
**Cun-Hui Zhang** Rutgers University, Piscataway, USA  
**, Hui Zou**

*Series: Chapman & Hall/CRC Data Science Series*

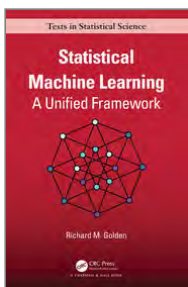
This book gives a comprehensive and systematic account of high-dimensional data analysis, including variable selection via regularization methods and sure independent feature screening methods. Offering more details on the topics than similar books, it is a valuable reference for researchers involved with model selection, variable selection, machine learning, and risk management. The book can also be used as a text for graduate and senior undergraduate students.

Chapman & Hall  
August 2020 : 774pp  
Hb: 978-1-466-51084-5 : **£110**  
eBook: 978-0-429-09628-0

\* For full contents and more information, visit: [www.routledge.com/9781466510845](http://www.routledge.com/9781466510845)

## Statistical Machine Learning

A Unified Framework

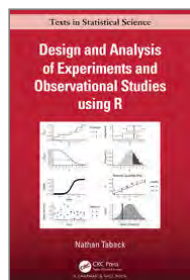
**Richard Golden***Series: Chapman & Hall/CRC Texts in Statistical Science*

For advanced undergraduate students, graduate students, and professional. Presents a wide range of popular, disparate, and diverse machine learning algorithms within a unified theoretical framework, characterized by a collection of carefully chosen theorems from the fields of nonlinear optimization theory and mathematical statistics which respectively characterize both asymptotic behavior and generalization performance. The purpose is to teach students how to confidently apply these theorems in practice. The only required mathematical prerequisites are lower-division linear algebra, lower-division calculus, and an upper-division calculus-based course in probability theory.

Chapman & Hall  
July 2020 : 524pp  
Hb: 978-1-138-48469-6 : **£105**  
eBook: 978-1-351-05150-7

\* For full contents and more information, visit: [www.routledge.com/9781138484696](http://www.routledge.com/9781138484696)

## Design and Analysis of Experiments and Observational Studies using R



**Nathan Taback** University of Toronto, Canada

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Introduction to Design and Analysis of Scientific Studies exposes undergraduate and graduate students to the foundations of classical experimental design and observational studies through a modern framework - The Rubin Causal Model. A causal inference framework is important in design, data collection and analysis since it provides a framework for investigators to readily evaluate study limitations and draw appropriate conclusions. R is used to implement designs and analyse the data collected.

Chapman & Hall

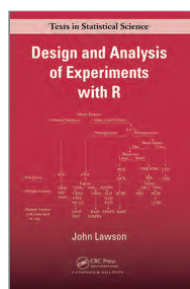
April 2022 : 292pp

Hb: 978-0-367-45685-6 : **£84.99**

eBook: 978-1-003-03369-1

\* For full contents and more information, visit: [www.routledge.com/9780367456856](http://www.routledge.com/9780367456856)

## Design and Analysis of Experiments with R



**John Lawson** Brigham Young University, Provo, Utah, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This text presents a unified treatment of experimental designs and design concepts commonly used in practice. It connects the objectives of research to the type of experimental design required, describes the process of creating the design and collecting the data, shows how to perform the proper analysis of the data, and illustrates the interpretation of results. R code is used to create and analyze all the example experiments, with the code examples available on the author's website.

Chapman & Hall

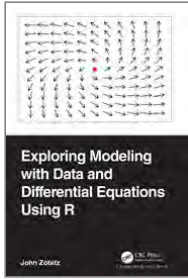
December 2014 : 628pp

Hb: 978-1-439-86813-3 : **£110**

eBook: 978-0-429-15452-2

\* For full contents and more information, visit: [www.routledge.com/9781439868133](http://www.routledge.com/9781439868133)

## Exploring Modeling with Data and Differential Equations Using R



**John Zobitz**

The book provides a unique introduction to differential equations with applications to the biological and other natural sciences. Additionally, model parameterization and simulation of stochastic differential equations are explored, providing additional tools for model analysis and evaluation. This unified framework sits "at the intersection" of different mathematical subject areas, data science, statistics, and the natural sciences. The text throughout emphasizes data science workflows using the R statistical software program and the tidyverse constellation of packages. Only knowledge of calculus is needed.

Chapman & Hall

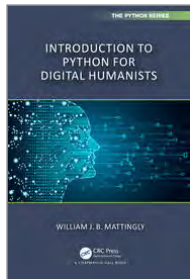
November 2022 : 378pp

Hb: 978-1-032-25948-2 : **£76.99**

eBook: 978-1-003-28697-4

\* For full contents and more information, visit: [www.routledge.com/9781032259482](http://www.routledge.com/9781032259482)

## Introduction to Python for Humanists



**William Mattingly**

*Series: Chapman & Hall/CRC The Python Series*

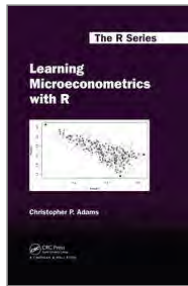
This book will introduce digital humanists at all levels of education to Python. It provides background and guidance on learning the Python computer programming language, and as it presumes no knowledge on the part of the reader about computers or coding concepts allows the reader to gradually learn the more complex tasks that are currently popular in the field of digital humanities. This book will be aimed at undergraduates, graduates, and faculty who are interested in learning how to use Python as a tool within their workflow, and will act as a primer for students who wish to use Python, allowing them to engage with more advanced textbooks.

Chapman & Hall  
July 2023 : 362pp  
Pb: 978-1-032-37837-4 : **£45.99**  
Hb: 978-1-032-37790-2 : **£120**  
eBook: 978-1-003-34217-5

\* For full contents and more information, visit: [www.routledge.com/9781032378374](http://www.routledge.com/9781032378374)



## Learning Microeconometrics with R



**Christopher P. Adams** Federal Trade Commission

*Series: Chapman & Hall/CRC The R Series*

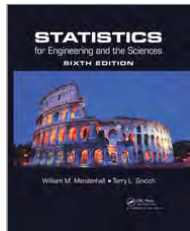
This book provides an introduction to the field of microeconometrics through the use of R. The focus is on applying current learning from the field to real world problems. It uses R to both teach the concepts of the field and show the reader how the techniques can be used. It is aimed at the general reader with the equivalent of a bachelor's degree in economics, statistics or some more technical field. It covers the standard tools of microeconometrics, OLS, instrumental variables, Heckman selection and difference in difference. In addition, it introduces bounds, factor models, mixture models and empirical Bayesian analysis.

Chapman & Hall  
December 2020 : 398pp  
Hb: 978-0-367-25538-1 : **£84.99**  
eBook: 978-0-429-28833-3

\* For full contents and more information, visit: [www.routledge.com/9780367255381](http://www.routledge.com/9780367255381)

6TH EDITION

## Statistics for Engineering and the Sciences



**William M. Mendenhall , Terry L. Sincich**

Designed for a two-semester introductory course, this popular text continues to teach students the basic concepts of data description and statistical inference as well as the statistical methods necessary for real-world applications. Along with updated and reorganized material, this sixth edition includes many new and updated exercises based on contemporary engineering and scientific-related studies and real data. It also offers more statistical software printouts and corresponding instructions for use that reflect the latest versions of the SAS, SPSS, and MINITAB software.

Chapman & Hall

December 2015 : 1182pp

Hb: 978-1-498-72885-0 : **£84.99**

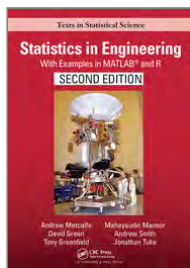
eBook: 978-0-429-07627-5

\* For **full contents** and more information, visit: [www.routledge.com/9781498728850](http://www.routledge.com/9781498728850)

2ND EDITION

## Statistics in Engineering

With Examples in MATLAB® and R, Second Edition



**Andrew Metcalfe , David Green , Tony Greenfield ,  
Mayhayaudin Mansor , Andrew Smith , Jonathan  
Tuke**

This is a textbook for an undergraduate course in statistics for engineers with a minimal calculus prerequisite. The second edition differs from existing books in three main aspects: it is the only introductory statistics textbook written for engineers that uses R throughout the text, there is an emphasis on statistical methods most relevant to engineers that are illustrated with practical applications, and there is an emphasis on random number generation and simulation, all very useful features in engineering.

Chapman & Hall

June 2020 : 810pp

Pb: 978-0-367-57062-0 : **£45.99**

Hb: 978-1-439-89547-4 : **£86.99**

eBook: 978-1-315-11723-2

\* For **full contents** and more information, visit: [www.routledge.com/9780367570620](http://www.routledge.com/9780367570620)

## Bringing Bayesian Models to Life



**Mevin B. Hooten , Trevor Hefley**

Bringing Bayesian Models to Life contains a comprehensive treatment of models and associated algorithms for fitting the models to data. We provide detailed and annotated R code in each chapter and apply it to fit each model we present to either real or simulated data for instructional purposes. Our code shows how to create every result and figure in the book so that readers can use and modify it for their own analyses. We provide all code and data in an organized set of directories available at the authors' websites.

CRC Press

June 2021 : 592pp

Pb: 978-1-032-09241-6 : **£45.99**

Hb: 978-0-367-19848-0 : **£71.99**

eBook: 978-0-429-24365-3

\* For full contents and more information, visit: [www.routledge.com/9781032092416](http://www.routledge.com/9781032092416)

## Introduction to Environmental Data Science



**Jerry Davis** Professor of Geography and Environmental Science, San Francisco State Uni, USA

*Series: Chapman & Hall/CRC Data Science Series*

Introduction to Environmental Data Science focuses on data science methods in the R language applied to environmental research, with sections on exploratory data analysis in R including data abstraction, transformation, and visualization; spatial data analysis in vector and raster models and more. It is an ideal textbook to teach undergraduate to graduate level students in environmental science, environmental studies, geography, earth science, and biology, but can also serve as a reference for environmental professionals working in consulting, NGOs, and government agencies at the local, state, federal, and international levels.

Chapman & Hall

March 2023 : 402pp

Hb: 978-1-032-32218-6 : **£76.99**

eBook: 978-1-003-31782-1

\* For full contents and more information, visit: [www.routledge.com/9781032322186](http://www.routledge.com/9781032322186)

## Spatio-Temporal Models for Ecologists



**James Thorson , Kasper Kristensen**

*Series: Chapman & Hall/CRC Applied Environmental Statistics*

This book seeks to introduce a minimal set of principles and numerical techniques for spatio-temporal statistics that can be used to implement a wide range of real-world ecological analyses regarding animal movement, population dynamics, community composition, causal attribution, and spatial dynamics. Techniques are showcased using real-world data from varied ecological systems, providing a toolset for hierarchical modelling of spatio-temporal processes. Spatio-Temporal Models for Ecologists is meant for graduate level students, alongside applied and academic ecologists. Step-by-step illustrations of techniques using R are provided.

Chapman & Hall

February 2024 : 294pp

Hb: 978-1-032-53101-4 : **£81.99**

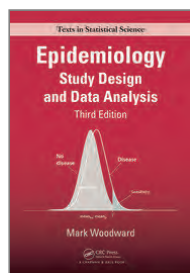
eBook: 978-1-003-41029-4

\* For full contents and more information, visit: [www.routledge.com/9781032531014](http://www.routledge.com/9781032531014)

3RD EDITION

## Epidemiology

Study Design and Data Analysis, Third Edition



**Mark Woodward** University of Oxford, UK; University of Sydney, Australia; and Johns Hopkins University, Baltimore, Maryland, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Updated and expanded, this popular text focuses on the quantitative aspects of epidemiological research. It shows students how statistical principles and techniques can help solve epidemiological problems. Along with more exercises and examples using both Stata and SAS, this third edition includes a new chapter on risk scores and clinical decision rules, a new chapter on computer-intensive methods, and new sections on binomial regression models, competing risk, information criteria, propensity scoring, and splines. Supporting materials are available on the book's CRC Press web page.

Chapman & Hall

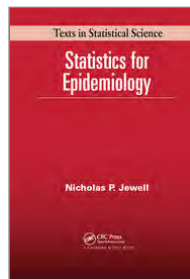
December 2013 : 898pp

Hb: 978-1-439-83970-6 : **£84.99**

eBook: 978-0-429-19626-3

\* For full contents and more information, visit: [www.routledge.com/9781439839706](http://www.routledge.com/9781439839706)

## Statistics for Epidemiology



**Nicholas P. Jewell** University of California, Berkeley, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Written by one of the top biostatisticians in the field, Statistics for Epidemiology fills a substantial niche by explaining the ideas behind the analysis of epidemiological data without requiring a high level of mathematics and without resorting to a 'cookbook' format. It covers the basic material for analyzing data that arise from simple epidemiological studies, including case-control and matched studies. Methodologically, it describes stratification techniques for handling confounding and interaction and the logistic regression model. The author uses a case-study approach, following a few simple examples through several method chapters rather than introducing a different example at each stage.

Chapman & Hall

August 2003 : 350pp

Hb: 978-1-584-88433-0 : **£110**

eBook: 978-0-429-17602-9

\* For full contents and more information, visit: [www.routledge.com/9781584884330](http://www.routledge.com/9781584884330)

## Algorithmic Trading and Quantitative Strategies



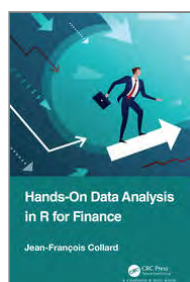
**Raja Velu , Maxence Hardy , Daniel Nehren**

This book brings together the literature in main stream finance and the tools presented in quantitative finance with a focus on what is being practiced in industry. The author begins with the economic theory behind price formation and tests the model that results from the theory and suggests algorithms to detect and exploit the anomalies. The book provides a comprehensive description of the methodologies both published and unpublished, but being practiced. The strength of the book is the intuitive approach to developing algorithms – based on statistical techniques, machine learning ideas, and optimization methods.

Chapman & Hall  
August 2020 : 450pp  
Hb: 978-1-498-73716-6 : **£105**  
eBook: 978-0-429-18394-2

\* For full contents and more information, visit: [www.routledge.com/9781498737166](http://www.routledge.com/9781498737166)

## Hands-On Data Analysis in R for Finance



**Jean-Francois Collard**

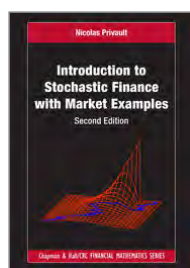
This textbook is an introduction to data science/data analysis applied to finance, using R and its most recent and freely available extension libraries. The target audience is undergrad data science, finance and graduate students, and practitioners or professionals who need a desk reference. This content has been tested in actual university classes, and makes the reader proficient in advanced methods such as machine learning, time series analysis and principal component analysis. It assumes no prior knowledge of R, providing comprehensive explanations on how to use the most recent resources, like financial and statistics libraries or open databases on the internet.

Chapman & Hall  
November 2022 : 414pp  
Hb: 978-1-032-34097-5 : **£76.99**  
eBook: 978-1-003-32055-5

\* For full contents and more information, visit: [www.routledge.com/9781032340975](http://www.routledge.com/9781032340975)

2ND EDITION

## Introduction to Stochastic Finance with Market Examples



**Nicolas Privault** Nanyang Technological University, Singapore

*Series: Chapman and Hall/CRC Financial Mathematics Series*

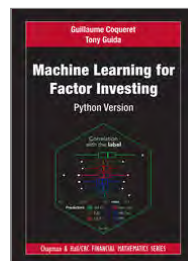
This book presents an introduction to pricing and hedging in discrete and continuous time financial models, emphasizing both analytical and probabilistic methods. It demonstrates both the power and limitations of mathematical models in finance, covering the basics of stochastic calculus for finance, and details the techniques required to model the time evolution of risky assets. With abundant exercises, problems with complete solutions, graphs and figures, and R coding examples, the book is primarily aimed at advanced undergraduate and graduate students as well as researchers and professionals in the field of applied mathematics, financial engineering, and economics.

Chapman & Hall  
December 2022 : 662pp  
Hb: 978-1-032-28826-0 : **£91.99**  
eBook: 978-1-003-29867-0

\* For full contents and more information, visit: [www.routledge.com/9781032288260](http://www.routledge.com/9781032288260)

## Machine Learning for Factor Investing

Python Version



**Guillaume Coqueret , Tony Guida**

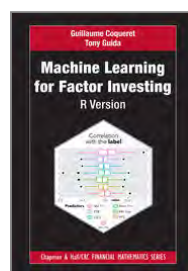
*Series: Chapman and Hall/CRC Financial Mathematics Series*

Machine learning (ML) is progressively reshaping the fields of quantitative finance and algorithmic trading. ML tools are increasingly adopted by hedge funds and asset managers, notably for alpha signal generation and stocks selection. The technicality of the subject can make it hard for non-specialists to join the bandwagon, as the jargon and coding requirements may seem out-of-reach. This book bridges this gap. It provides a comprehensive tour of modern ML-based investment strategies that rely on firm characteristics. Machine learning for factor investing: Python version deepens your financial and technical expertise.

Chapman & Hall  
August 2023 : 358pp  
Pb: 978-0-367-63972-3 : **£68.99**  
Hb: 978-0-367-63974-7 : **£175**  
eBook: 978-1-003-12159-6

\* For full contents and more information, visit: [www.routledge.com/9780367639723](http://www.routledge.com/9780367639723)

## Machine Learning for Factor Investing: R Version



**Guillaume Coqueret , Tony Guida**

*Series: Chapman and Hall/CRC Financial Mathematics Series*

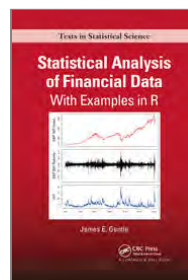
The aim of the book is to give an interpretation of ML tools through the lens of factor investing. Concepts illustrated with examples on the same (public) dataset throughout the book. Provides code samples and the corresponding results so that anybody can reproduce the steps.

Chapman & Hall  
September 2020 : 342pp  
Pb: 978-0-367-54586-4 : **£68.99**  
Hb: 978-0-367-47322-8 : **£175**  
eBook: 978-1-003-03485-8

\* For full contents and more information, visit: [www.routledge.com/9780367545864](http://www.routledge.com/9780367545864)

## Statistical Analysis of Financial Data

With Examples In R



**James Gentle** George Mason University

*Series: Chapman & Hall/CRC Texts in Statistical Science*

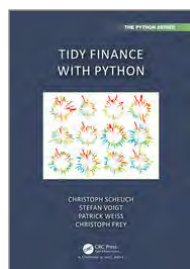
The book is about financial data, in particular, security prices and prices of derivatives, and the statistical methods for analyzing such data. It covers statistical models of branching processes, linear discrete time series models, and continuous-time stochastic models, all at an intermediate level (advanced undergraduate, or beginning graduate). ).

The book provides a brief introduction to R and uses R extensively to get and analyze data. Actual financial datasets are discussed and analyzed.

CRC Press  
September 2021 : 666pp  
Pb: 978-1-032-17346-7 : **£45.99**  
Hb: 978-1-138-59949-9 : **£105**  
eBook: 978-0-429-48560-2

\* For full contents and more information, visit: [www.routledge.com/9781032173467](http://www.routledge.com/9781032173467)

## Tidy Finance with Python



**Christoph Scheuch , Stefan Voigt , Patrick Weiss**  
Reykjavik University, Iceland, **Christoph Frey** Pinechip  
Capital, Germany

*Series: Chapman & Hall/CRC The Python Series*

This book shows how to bring theoretical concepts from finance and econometrics to the data. Focusing on coding and data analysis with Python, how to conduct research in empirical finance from scratch is shown. We start by introducing the concepts of tidy data and coding principles using pandas, numpy, and plotnine. Code is provided to prepare common open-source and proprietary financial data sources and organize them in a database. We reuse these data in all the subsequent chapters, which we keep as self-contained as possible. The empirical applications range from key concepts of empirical asset pricing to modeling and machine learning applications.

Chapman & Hall  
July 2024 : 262pp  
Pb: 978-1-032-67641-8 : **£63.99**  
Hb: 978-1-032-68429-1 : **£165**  
eBook: 978-1-032-68430-7

\* For full contents and more information, visit: [www.routledge.com/9781032676418](http://www.routledge.com/9781032676418)

## Tidy Finance with R



**Christoph Scheuch , Stefan Voigt , Patrick Weiss**

*Series: Chapman & Hall/CRC The R Series*

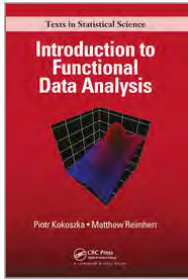
This textbook shows how to bring theoretical concepts from finance and econometrics to the data. Focusing on coding and data analysis with R, we show how to conduct research in empirical finance from scratch. We start by introducing the concepts of tidy data and coding principles using the tidyverse family of R packages. The empirical applications range from key concepts of empirical asset pricing to modeling and machine learning applications (fixed effects estimation, clustering standard errors, difference-in-difference estimators, ridge regression, Lasso, Elastic net, random forests, neural networks) and portfolio optimization techniques.

Chapman & Hall  
April 2023 : 268pp  
Pb: 978-1-032-38934-9 : **£63.99**  
Hb: 978-1-032-38933-2 : **£165**  
eBook: 978-1-003-34753-8

\* For full contents and more information, visit: [www.routledge.com/9781032389349](http://www.routledge.com/9781032389349)



## Introduction to Functional Data Analysis



**Piotr Kokoszka , Matthew Reimherr**

The book will provide an introduction to functional data analysis (FDA). This field of statistics has seen rapid development over the last two–three decades. At present, FDA has reached a certain maturity with its central ideas and methods crystalized; it is now generally viewed as a fundamental subfield of statistics. FDA methods have been applied to many fields of science, business and engineering. While new theoretical results, methodological tools, and novel applications are still being reported, the literature has become so vast that an introductory account will be useful to students and researchers seeking an accessible and sufficiently comprehensive introduction to the subject.

Chapman & Hall

June 2021 : 306pp

Pb: 978-1-032-09659-9 : **£45.99**

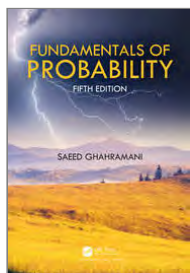
Hb: 978-1-498-74634-2 : **£84.99**

eBook: 978-1-315-11741-6

\* For full contents and more information, visit: [www.routledge.com/9781032096599](http://www.routledge.com/9781032096599)

5TH EDITION

## Fundamentals of Probability



**Saeed Ghahramani** Western New England University,  
Springfield, Massachusetts, USA

This one- or two-term calculus-based basic probability text is written for majors in mathematics, physical sciences, engineering, statistics, actuarial science, business and finance, operations research, and computer science. It presents probability in a natural way: through interesting and instructive examples and exercises that motivate the theory, definitions, theorems, and methodology. This book is mathematically rigorous and, at the same time, closely matches the historical development of probability. Whenever appropriate, historical remarks are included, and the 2096 examples and exercises have been designed to arouse curiosity and encourage students to delve into the theory.

Chapman & Hall  
May 2024 : 700pp

Hb: 978-1-032-36608-1 : **£120**

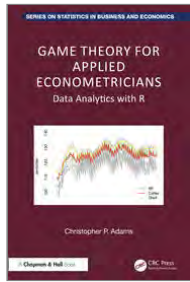
IEPB: 978-1-032-80353-1 : **£49.99**

eBook: 978-1-003-33289-3

\* For full contents and more information, visit: [www.routledge.com/9781032366081](http://www.routledge.com/9781032366081)

## Game Theory for Applied Econometricians

Data Analytics with R



**Christopher P. Adams** Federal Trade Commission

*Series: Chapman and Hall/CRC Series on Statistics in Business and Economics*

Over the last 30 years the practice and use of game theory has changed dramatically, yet textbooks continue to present game theory with algebraic formalism and toy models. This book, on the other hand, illustrates game theory concepts using real-world data and analyses problems with real policy implications. The examples include an analysis of bargaining between hospitals and insurers, equilibrium entry of retail tire stores, bid rigging in timber auctions and contracts in 19th century whaling. This book is aimed at the general reader with the equivalent of a bachelor's degree in economics, statistics or some more technical field.

Chapman & Hall

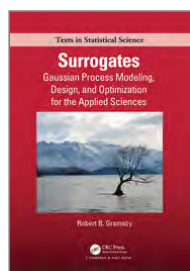
May 2025 : 282pp

Hb: 978-1-032-39833-4 : £89.99

\* For full contents and more information, visit: [www.routledge.com/9781032398334](http://www.routledge.com/9781032398334)

## Surrogates

Gaussian Process Modeling, Design, and Optimization for the Applied Sciences



**Robert B. Gramacy**

Surrogates: a graduate textbook, or professional handbook, on topics at the interface between machine learning, spatial statistics, computer simulation, meta-modeling (i.e., emulation), design of experiments, and optimization. Experimentation through simulation, "human out-of-the-loop" statistical support (focusing on the science), management of dynamic processes, online and real-time analysis, automation, and practical application are at the forefront.

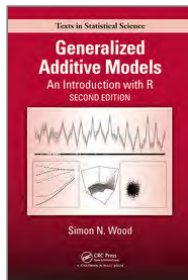
Chapman & Hall  
December 2021 : 560pp  
Pb: 978-1-032-24255-2 : **£39.99**  
Hb: 978-0-367-41542-6 : **£105**  
eBook: 978-0-367-81549-3

\* For full contents and more information, visit: [www.routledge.com/9781032242552](http://www.routledge.com/9781032242552)

2ND EDITION

**Generalized Additive Models**

An Introduction with R, Second Edition

**Simon N. Wood***Series: Chapman & Hall/CRC Texts in Statistical Science*

The first edition of this book has established itself as one of the leading references on generalized additive models (GAMs), and the only book on the topic to be introductory in nature with a wealth of practical examples and software implementation. It is self-contained, providing the necessary background in linear models, linear mixed models, and generalized linear models (GLMs), before presenting a balanced treatment of the theory and applications of GAMs and related models. The author bases his approach on a framework of penalized regression splines, and while firmly focused on the practical aspects of GAMs, discussions include fairly full explanations of the theory underlying the methods. Use of R software helps explain the theory and illustrates the practical application of the methodology. Each chapter contains an extensive set of exercises, with solutions in an appendix or in the book's R data package gamair, to enable use as a course text or for self-study.

Chapman &amp; Hall

May 2017 : 496pp

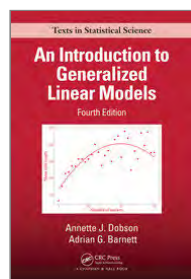
Hb: 978-1-498-72833-1 : **£76.99**

eBook: 978-1-315-37027-9

\* For full contents and more information, visit: [www.routledge.com/9781498728331](http://www.routledge.com/9781498728331)

4TH EDITION

## An Introduction to Generalized Linear Models



**Annette J. Dobson** University of Queensland, Herston, Australia, **Adrian G. Barnett** Queensland University of Technology, Kelvin Grove, Australia

Series: *Chapman & Hall/CRC Texts in Statistical Science*

This book provides a cohesive framework for statistical modelling, with an emphasis on numerical and graphical methods. This new edition of a bestseller has been updated with new sections on non-linear associations, strategies for model selection, and a Postface on good statistical practice. Like its predecessor, it presents the theoretical background of generalized linear models (GLMs) before focusing on methods for analyzing particular kinds of data. It covers Normal, Poisson, and Binomial distributions; linear regression models; classical estimation and model fitting methods; and frequentist methods of statistical inference. After forming this foundation, the authors explore multiple linear regression, analysis of variance (ANOVA), logistic regression, log-linear models, survival analysis, multilevel modeling, Bayesian models, and Markov chain Monte Carlo (MCMC) methods.

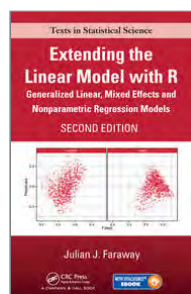
Chapman & Hall  
April 2018 : 392pp  
Pb: 978-1-138-74151-5 : **£71.99**  
Hb: 978-1-138-74168-3 : **£155**  
eBook: 978-1-315-18278-0

\* For full contents and more information, visit: [www.routledge.com/9781138741515](http://www.routledge.com/9781138741515)

2ND EDITION

## Extending the Linear Model with R

Generalized Linear, Mixed Effects and Nonparametric Regression Models, Second Edition



**Julian J. Faraway** University of Bath, UK

Series: *Chapman & Hall/CRC Texts in Statistical Science*

This second edition of a bestseller takes advantage of the greater functionality now available in R and substantially revises and adds several topics. It expands coverage of binary and binomial responses, incorporates many new sections, and adds a chapter on the Bayesian analysis of mixed effect models. It also revamps the R code throughout and updates the exercises, with solutions now included. The text explains data analysis using real examples and includes all the R commands necessary to reproduce the analyses.

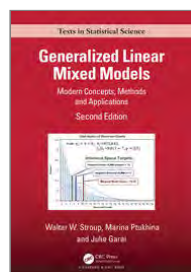
Chapman & Hall  
March 2016 : 414pp  
Hb: 978-1-498-72096-0 : **£86.99**  
eBook: 978-1-315-38272-2

\* For full contents and more information, visit: [www.routledge.com/9781498720960](http://www.routledge.com/9781498720960)

2ND EDITION

## Generalized Linear Mixed Models

Modern Concepts, Methods and Applications



**Walter W. Stroup** University of Nebraska, Lincoln, USA, **Marina Ptukhina** Associate Professor, Whitman College, **Julie Garai** Associate Professor, Uni of Nebraska-Lincoln

Series: *Chapman & Hall/CRC Texts in Statistical Science*

Generalized Linear Mixed Models: Modern Concepts, Methods and Applications (2nd edition) presents an updated introduction to linear modeling using the generalized linear mixed model (GLMM) as the overarching conceptual framework. For students new to statistical modeling, this book helps them see the big picture – linear modeling as broadly understood and its intimate connection with statistical design and mathematical statistics. This second edition is updated to reflect lessons learned and experience gained regarding best practices and modelling choices faced by GLMM practitioners. New to this edition are two chapters focusing on Bayesian methods for GLMMs.

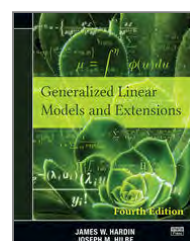
Chapman & Hall  
May 2024 : 668pp  
Hb: 978-1-498-75556-6 : **£76.99**  
eBook: 978-0-429-09206-0

\* For full contents and more information, visit: [www.routledge.com/9781498755566](http://www.routledge.com/9781498755566)

4TH EDITION

## Generalized Linear Models and Extensions

Fourth Edition



**James W. Hardin** University of South Carolina, Columbia, USA, **Joseph M. Hilbe** California Institute of Technology, Pasadena, and Arizona State University, Tempe, USA

Generalized linear models (GLMs) extend linear regression to models with a non-Gaussian, or even discrete, response. In this text, Hardin and Hilbe thoroughly cover GLMs both theoretically and computationally. Theoretical discussions include properties of distributions, maximum likelihood and iteratively reweighted least-squares estimations, estimation of standard errors, and model diagnostics. The authors also demonstrate how to fit models for continuous, binary, count, ordinal, and categorical outcomes using GLM and other Stata commands. New in the fourth edition are introductions to multivariate models and Bayesian analysis and examples of creating synthetic data for GLMs.

Stata Press  
April 2018 : 598pp  
Pb: 978-1-597-18225-6 : **£65.99**

\* For full contents and more information, visit: [www.routledge.com/9781597182256](http://www.routledge.com/9781597182256)



## Geocomputation with Python



**Michael Dorman , Anita Graser , Jakub Nowosad , Robin Lovelace** University of Leeds, UK

*Series: Chapman & Hall/CRC The Python Series*

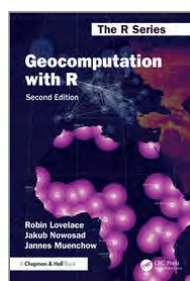
Geocomputation with Python is a comprehensive resource for working with geographic data with the most popular programming language in the world. The book gives an overview of Python's capabilities for spatial data analysis, as well as dozens of worked-through examples covering the entire range of standard GIS operations. Another unique feature is that this book is part of a wider community. Geocomputation with Python is a sister project of Geocomputation with R (Lovelace, Nowosad, and Muenchow 2019), a book on geographic data analysis, visualization, and modeling using the R programming language that has numerous contributors and an active community.

Chapman & Hall  
February 2025 : 344pp  
Pb: 978-1-032-46065-9 : **£55.99**  
Hb: 978-1-032-45891-5 : **£150**  
eBook: 978-1-003-37991-1

\* For **full contents** and more information, visit: [www.routledge.com/9781032460659](http://www.routledge.com/9781032460659)

2ND EDITION

## Geocomputation with R



**Robin Lovelace** University of Leeds, UK, **Jakub Nowosad , Jannes Muenchow** Friedrich Schiller University, Jena, Germany

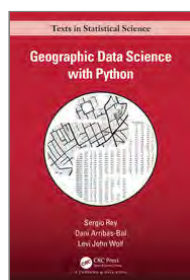
*Series: Chapman & Hall/CRC The R Series*

Geocomputation with R is for people who want to analyze, visualize, and model geographic data with open source software. The book provides a foundation for learning how to solve a wide range of geographic data analysis problems in a reproducible, and therefore scientifically sound and scalable way. The second edition features numerous updates, including the adoption of the high-performance terra package for all raster data processing, detailed coverage of the spherical geometry engine s2, updated information on coordinate reference systems and new content on openEO, STAC, COG, and gdalraster. The book equips you with the knowledge and skills to tackle a wide range of issues.

Chapman & Hall  
February 2025 : 424pp  
Pb: 978-1-032-24888-2 : **£55.99**  
Hb: 978-1-032-22979-9 : **£150**

\* For **full contents** and more information, visit: [www.routledge.com/9781032248882](http://www.routledge.com/9781032248882)

## Geographic Data Science with Python



**Sergio Rey , Dani Arribas-Bel** University of Liverpool, Merseyside, United Kingdom, **Levi John Wolf** School of Geographical Sciences

*Series: Chapman & Hall/CRC Texts in Statistical Science*

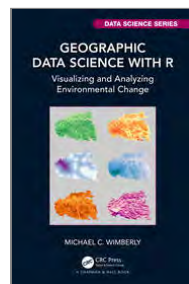
This book provides the tools, the methods, and the theory to meet the challenges of contemporary data science applied to geographic problems and data. In the new world of pervasive, large, frequent, and rapid data, there are new opportunities to understand and analyze the role of geography in everyday life. Geographic Data Science with Python introduces a new way of thinking about analysis, by using geographical and computational reasoning. Intended for data scientists, GIScientists, and geographers, the material provided in this book is of interest due to the manner in which it presents geospatial data, methods, tools, and practices in this new field.

Chapman & Hall  
June 2023 : 410pp  
Pb: 978-1-032-44595-3 : **£49.99**  
Hb: 978-0-367-26311-9 : **£135**  
eBook: 978-0-429-29250-7

\* For **full contents** and more information, visit: [www.routledge.com/9781032445953](http://www.routledge.com/9781032445953)

## Geographic Data Science with R

Visualizing and Analyzing Environmental Change



**Michael C. Wimberly** The University of Oklahoma, USA

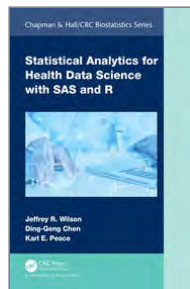
*Series: Chapman & Hall/CRC Data Science Series*

The purpose of this book is to provide a series of tutorials aimed at teaching good practices for using geospatial data to address problems in environmental geography. Fundamental techniques for processing and visualizing tabular, vector, and raster data are introduced through a series of practical examples followed by case studies that combine multiple types of data to address more complex problems. The book will have a broad audience. Students and professionals can use it as a workbook to learn high-level techniques for geospatial data processing and analysis with R. It is designed to be accessible to readers who have at least some knowledge of coding.

Chapman & Hall  
May 2023 : 310pp  
Hb: 978-1-032-34771-4 : **£81.99**  
eBook: 978-1-003-32619-9

\* For **full contents** and more information, visit: [www.routledge.com/9781032347714](http://www.routledge.com/9781032347714)

## Statistical Analytics for Health Data Science with SAS and R



**Jeffrey Wilson , Ding-Geng Chen , Karl E. Peace**  
Georgia Southern University, USA

*Series: Chapman & Hall/CRC Biostatistics Series*

This book is aimed to compile typical fundamental to advanced statistical methods to be used for health data sciences. This book promotes the applications to health and health-related data. The data and computing programs will be available to facilitate readers' learning experience. The primary readers would be applied data scientists and practitioners in any field of data science, applied statistical analysts and scientists in public health, academic researchers, and graduate students in statistics and biostatistics. The secondary readers would be R&D professionals/practitioners in industry and governmental agencies. This book can be used for both teaching and applied research.

Chapman & Hall  
March 2023 : 280pp  
Hb: 978-1-032-32562-0 : **£76.99**  
eBook: 978-1-003-31567-4

\* For full contents and more information, visit: [www.routledge.com/9781032325620](http://www.routledge.com/9781032325620)

## R for Health Data Science



**Ewen Harrison , Riinu Pius**

In this age of information, the manipulation, analysis, and interpretation of data has become a fundamental part of professional life. From the understanding of disease and the development of new treatments, to the diagnosis and management of individual patients, the use of data and technology is now an integral part of the business of healthcare. Those working in healthcare interact daily with data, often without realising it. The conversion of this avalanche of information to useful knowledge is essential for high quality patient care. R for Health Data Analysis includes everything a healthcare professional needs to go from R Novice to R Guru.

Chapman & Hall

November 2020 : 364pp

Pb: 978-0-367-42819-8 : **£68.99**

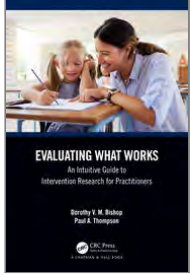
Hb: 978-0-367-42832-7 : **£175**

eBook: 978-0-367-85542-0

\* For full contents and more information, visit: [www.routledge.com/9780367428198](http://www.routledge.com/9780367428198)

## Evaluating What Works

An Intuitive Guide to Intervention Research for Practitioners



**Dorothy V. M. Bishop** University of Oxford, UK, **Paul Thompson** University of Warwick, UK

Those who work in allied health professions and education aim to make people's lives better. Often, however, it is hard to know how effective this work has been: would change have occurred if there was no intervention? Is it possible we are doing more harm than good? To answer these questions and develop a body of knowledge about what works, we need to evaluate interventions. This book is intended for those with little or no background in statistics, to give them the confidence to approach statistics in published literature with a critical eye, recognise when specialist advice is needed, and give them the ability to communicate more effectively with statisticians.

Chapman & Hall

December 2023 : 234pp

Pb: 978-1-032-59061-5 : **£47.99**

Hb: 978-1-032-59120-9 : **£125**

eBook: 978-1-003-45307-9

\* For full contents and more information, visit: [www.routledge.com/9781032590615](https://www.routledge.com/9781032590615)

2ND EDITION

## Modern Statistics with R

From Wrangling and Exploring Data to Inference and Predictive Modelling



**Måns Thulin**

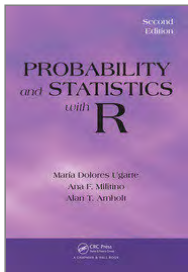
Recent decades have transformed the world of statistical data analysis, with new methods, new types of data, and new computational tools. Modern Statistics with R introduces key parts of this modern statistical toolkit. No prior programming experience is necessary. Clear explanations and examples are provided to accommodate readers at all levels of familiarity with statistical principles and coding practices. A basic understanding of probability theory can enhance comprehension of certain concepts discussed within this book. In addition to plenty of examples, the book includes more than 200 exercises, with fully worked solutions available at [www.modernstatisticswithr.com](http://www.modernstatisticswithr.com).

Chapman & Hall  
August 2024 : 492pp  
Pb: 978-1-032-51244-0 : **£63.99**  
Hb: 978-1-032-49745-7 : **£165**  
eBook: 978-1-003-40133-9

\* For full contents and more information, visit: [www.routledge.com/9781032512440](http://www.routledge.com/9781032512440)

2ND EDITION

## Probability and Statistics with R



**Maria Dolores Ugarte** Public University of Navarre, Pamplona, Spain, **Ana F. Militino** Public University of Navarre, Pamplona, Spain, **Alan T. Arnholt** Appalachian State University, Boone, North Carolina, USA

Since the publication of the popular first edition, the contributed R packages on CRAN have increased from around 1,000 to over 6,000. This second edition explores how some of these new packages make analysis easier and more intuitive as well as create more visually pleasing graphs. Along with adding new examples and exercises, this edition improves the existing examples, problems, concepts, data, and functions. Data sets, R functions, and more are available online.

Chapman & Hall  
July 2015 : 984pp  
Hb: 978-1-466-50439-4 : **£96.99**  
eBook: 978-0-429-09614-3

\* For full contents and more information, visit: [www.routledge.com/9781466504394](http://www.routledge.com/9781466504394)

## Project-Based R Companion to Introductory Statistics



**Chelsea Myers**

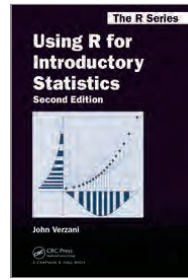
One of the most difficult transitions students face when beginning a first "real" job after college is moving beyond solving the well-designed problems found in textbooks to tackling the messy, complex problems they face in the real world. Statistics: A Project-Based Approach Using R is designed as a companion text for undergraduate students who wish to learn basic R programming and gain experience analyzing data from larger, real-world projects. Topics covered include working with R and RStudio, basic descriptive statistics, two-way tables, simple linear regression and hypothesis testing for means and proportions.

Chapman & Hall  
December 2020 : 183pp  
Pb: 978-0-367-26208-2 : **£49.99**  
Hb: 978-0-367-68734-2 : **£135**  
eBook: 978-0-429-29200-2

\* For full contents and more information, visit: [www.routledge.com/9780367262082](http://www.routledge.com/9780367262082)

2ND EDITION

## Using R for Introductory Statistics



**John Verzani** CUNY/College of Staten Island, New York, USA

Series: Chapman & Hall/CRC The R Series

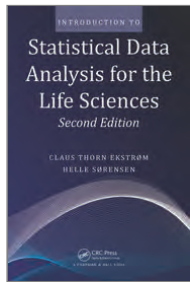
The second edition of a bestselling textbook, Using R for Introductory Statistics guides students through the basics of R, helping them overcome the sometimes steep learning curve. The author does this by breaking the material down into small, task-oriented steps. The second edition maintains the features that made the first edition so popular, while updating data, examples, and changes to R in line with the current version.

Chapman & Hall  
June 2014 : 518pp  
Hb: 978-1-466-59073-1 : **£61.99**  
eBook: 978-1-315-37308-9

\* For full contents and more information, visit: [www.routledge.com/9781466590731](http://www.routledge.com/9781466590731)

2ND EDITION

## Introduction to Statistical Data Analysis for the Life Sciences



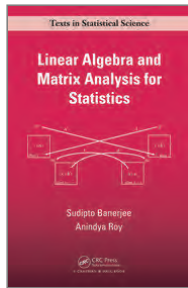
**Claus Thorn Ekstrom** University of Copenhagen, Denmark, **Helle Sørensen** University of Copenhagen, Denmark

Using R throughout, this popular textbook presents the right balance of data examples, statistical theory, and computing to teach introductory statistics to students in the life sciences. Expanded with over 100 more pages, this edition includes a new chapter on non-linear regression models and a new chapter that contains examples of complete data analyses. It also incorporates additional exercises in most chapters as well as a summary of statistical formulas related to the specific designs used to teach the statistical concepts.

Chapman & Hall  
November 2014 : 526pp  
Pb: 978-1-482-23893-8 : **£61.99**  
Hb: 978-1-138-44574-1 : **£185**  
eBook: 978-0-429-06942-0

\* For full contents and more information, visit: [www.routledge.com/9781482238938](http://www.routledge.com/9781482238938)

## Linear Algebra and Matrix Analysis for Statistics



**Sudipto Banerjee** University of California, Los Angeles, USA, **Anindya Roy** Department of Math and Statistics, University of Maryland Baltimore County, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

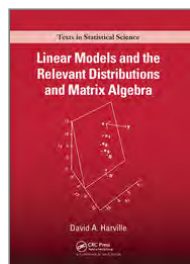
Assuming no prior knowledge of linear algebra, this self-contained text offers a gradual exposition to linear algebra without sacrificing the rigor of the subject. It presents both the vector space approach and the canonical forms in matrix theory. The book covers important topics in linear algebra that are useful for statisticians, including the concept of rank, the fundamental theorem of linear algebra, projectors, and quadratic forms. It also provides an extensive collection of exercises on theoretical concepts and numerical computations.

Chapman & Hall  
June 2014 : 582pp  
Hb: 978-1-420-09538-8 : **£84.99**  
eBook: 978-0-429-17413-1

\* For full contents and more information, visit: [www.routledge.com/9781420095388](http://www.routledge.com/9781420095388)



## Linear Models and the Relevant Distributions and Matrix Algebra



**David A. Harville**

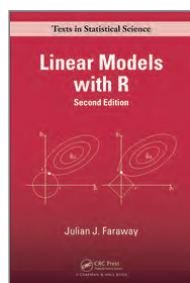
The book describes the use of linear statistical models as a basis for statistical inference and the theoretical underpinnings of the resultant inferential procedures. It covers the relevant distributions and matrix algebra that is relatively complete and self-contained. Derivations or proofs are provided for almost all results; some of these are not readily available from other sources. The book includes coverage of some topics that are typically covered less extensively or not covered at all in other books on linear models; among these topics are prediction, multiple-comparison procedures for controlling the FDR, and spherical/elliptical distributions.

Chapman & Hall  
June 2020 : 538pp  
Pb: 978-0-367-57203-7 : **£39.99**  
Hb: 978-1-138-57833-3 : **£135**  
eBook: 978-1-351-26468-6

\* For full contents and more information, visit: [www.routledge.com/9780367572037](http://www.routledge.com/9780367572037)

2ND EDITION

## Linear Models with R



**Julian J. Faraway** University of Bath, UK

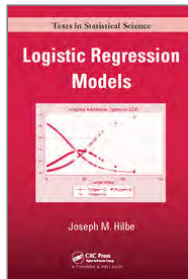
*Series: Chapman & Hall/CRC Texts in Statistical Science*

Like its widely praised, best-selling predecessor, this second edition explains how to use linear models in physical science, engineering, social science, and business applications. The material on interpreting linear models now distinguishes the main applications of prediction and explanation and introduces elementary notions of causality. This edition also covers QR decomposition, splines, additive models, Lasso, multiple imputation, and false discovery rates. It extensively uses R's ggplot2 graphics package in addition to base graphics.

Chapman & Hall  
July 2014 : 286pp  
Hb: 978-1-439-88733-2 : **£86.99**  
eBook: 978-0-429-11171-6

\* For full contents and more information, visit: [www.routledge.com/9781439887332](http://www.routledge.com/9781439887332)

## Logistic Regression Models



**Joseph M. Hilbe** California Institute of Technology, Pasadena, and Arizona State University, Tempe, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Logistic regression is increasingly being taught in individual short courses or as a major component of a course on categorical data analysis. Based on a successful short course taught by the author, this text provides an overview of logistic regression models with a particular emphasis on their practical application. It covers the basic derivation of logistic models, their interpretation, various goodness-of-fit tests, overdispersion and how it can be handled, how models can be ill-fitted, and several extended models. Full of examples of real data taken from the medical and social sciences, the text implements the examples using Stata and R.

Chapman & Hall

May 2017 : 656pp

Pb: 978-1-138-10671-0 : **£54.99**

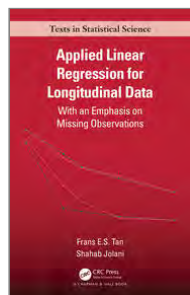
Hb: 978-1-420-07575-5 : **£155**

eBook: 978-0-429-14913-9

\* For full contents and more information, visit: [www.routledge.com/9781138106710](http://www.routledge.com/9781138106710)

## Applied Linear Regression for Longitudinal Data

With an Emphasis on Missing Observations



**Frans E.S. Tan , Shahab Jolani**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This book introduces best practices in longitudinal data analysis at intermediate level, with a minimum number of formulas without sacrificing depths. It meets the need to understand statistical concepts of longitudinal data analysis by visualizing important techniques instead of using abstract mathematical formulas. Different solutions such as multiple imputation are explained conceptually and consequences of missing observations are clarified using visualization techniques. It is the ideal companion for researcher and students in epidemiological, health, and social and behavioral sciences working with longitudinal studies without a mathematical background.

Chapman & Hall

December 2022 : 248pp

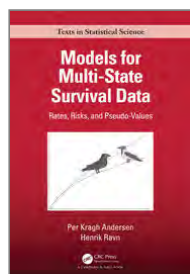
Hb: 978-0-367-63431-5 : **£91.99**

eBook: 978-1-003-12138-1

\* For **full contents** and more information, visit: [www.routledge.com/9780367634315](http://www.routledge.com/9780367634315)

## Models for Multi-State Survival Data

Rates, Risks, and Pseudo-Values



**Per Kragh Andersen** Biostatistics, University of Copenhagen, **Henrik Ravn** Novo Nordisk A/S

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Multi-state models provide a statistical framework for studying longitudinal data on subjects when focus is on the occurrence of events that the subjects may experience over time. They find application particularly in biostatistics, medicine, and public health. The book includes mathematical detail which can be skipped by readers more interested in the practical examples. It is aimed at biostatisticians and at readers with an interest in the topic having a more applied background, such as epidemiology.

Chapman & Hall

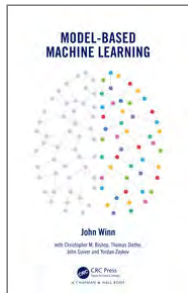
October 2023 : 292pp

Hb: 978-0-367-14002-1 : **£81.99**

eBook: 978-0-429-02968-4

\* For **full contents** and more information, visit: [www.routledge.com/9780367140021](http://www.routledge.com/9780367140021)

## Model-Based Machine Learning



**John Winn** Microsoft Research Ltd., Cambridge, United Kingdom

Machine learning is being applied to a growing variety of problems in a variety of domains. A fundamental challenge when using machine learning is connecting the abstract mathematics of a machine learning technique to real world problems. This book tackles this through model-based machine learning, focusing on understanding the assumptions encoded in a machine learning system and their impact on the behaviour of the system. The key ideas of model-based machine learning are introduced through case studies involving real-world applications. It aims not just to explain machine learning methods, but also how to create, debug, and evolve them to solve a problem.

Chapman & Hall

October 2023 : 468pp

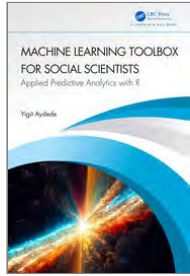
Hb: 978-1-498-75681-5 : **£71.99**

eBook: 978-0-429-19268-5

\* For full contents and more information, visit: [www.routledge.com/9781498756815](http://www.routledge.com/9781498756815)

## Machine Learning Toolbox for Social Scientists

Applied Predictive Analytics with R



**Yigit Aydede** Professor, Saint Mary's University

Machine Learning Toolbox for Social Scientists covers predictive methods with complementary statistical "tools" that make it mostly self-contained. The inferential statistics is the traditional framework for most data analytics courses in social science and business fields, especially in Economics and Finance. The new organization that this book offers goes beyond standard machine learning code applications, providing intuitive backgrounds for new predictive methods that social science and business students can follow. The modern statistical methods the book provides allows it to be effectively used in teaching in the social science and business fields.

Chapman & Hall

September 2023 : 600pp

Hb: 978-1-032-46395-7 : **£81.99**

eBook: 978-1-003-38150-1

\* For full contents and more information, visit: [www.routledge.com/9781032463957](http://www.routledge.com/9781032463957)

## Foundations of Statistics for Data Scientists

With R and Python



**Alan Agresti, Maria Kateri**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

Designed as a textbook for a one or two-term introduction to mathematical statistics for students training to become data scientists, *Foundations of Statistics for Data Scientists: With R and Python* is an in-depth presentation of the topics in statistical science

Chapman & Hall

November 2021 : 486pp

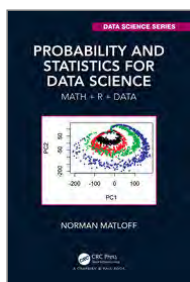
Hb: 978-0-367-74845-6 : **£84.99**

eBook: 978-1-003-15983-4

\* For full contents and more information, visit: [www.routledge.com/9780367748456](http://www.routledge.com/9780367748456)

## Probability and Statistics for Data Science

Math + R + Data



**Norman Matloff**

*Series: Chapman & Hall/CRC Data Science Series*

This text is designed for a one-semester junior/senior/graduate-level calculus-based course on probability and statistics, aimed specifically at data science students (including computer science). In addition to calculus, the text assumes basic knowledge of matrix algebra and rudimentary computer programming. The key difference is the consistently applied approach, pervasive throughout the book. The overriding goal is to stay mathematically precise, yet emphasize intuition, modeling and applications.

Chapman & Hall

June 2019 : 444pp

Pb: 978-1-138-39329-5 : **£58.99**

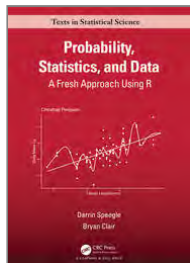
Hb: 978-0-367-26093-4 : **£155**

eBook: 978-0-429-40186-2

\* For full contents and more information, visit: [www.routledge.com/9781138393295](http://www.routledge.com/9781138393295)

## Probability, Statistics, and Data

A Fresh Approach Using R



**Darrin Speegle** Department of Mathematics and Statistics Saint Louis University, MO, USA, **Bryan Clair** Saint Louis University, MO, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This book is a first course in probability and statistics using R. The book assumes a mathematical background of Calculus II, though much of the book can be read with a much lower level of mathematics. The book incorporates R throughout all sections via simulations, data wrangling and/or data visualization. Tidyverse and base R tools are interspersed, depending on which is better for a particular job. For most visualizations, ggplot is used, and for most data wrangling, dplyr is used.

Chapman & Hall

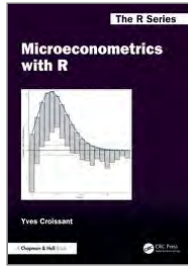
November 2021 : 512pp

Hb: 978-0-367-43667-4 : **£84.99**

eBook: 978-1-003-00489-9

\* For full contents and more information, visit: [www.routledge.com/9780367436674](http://www.routledge.com/9780367436674)

## Microeconometrics with R



**Yves Croissant** Université de La Reunion, France

*Series: Chapman & Hall/CRC The R Series*

Microeconometrics became increasingly popular in the last decades, thanks to the availability of many individual data sets and to the development of computer performance. The book is devoted to the ordinary least square estimator. Matrix algebra is progressively introduced in this part and a special attention is paid on the interpretation of the estimated coefficients. It also goes beyond the basic OLS estimator by testing the hypothesis on which this estimator is based on and providing more complex estimators relevant when some of these hypotheses are violated. The book also presents specific estimators devoted to « special » responses, eg count, binomial or duration data.

Chapman & Hall  
February 2025 : 516pp  
Hb: 978-0-367-55446-0 : **£89.99**  
eBook: 978-1-003-10026-3

\* For full contents and more information, visit: [www.routledge.com/9780367554460](http://www.routledge.com/9780367554460)



2ND EDITION

## Statistical Methods for Handling Incomplete Data

**Jae Kwang Kim , Jun Shao**

Due to recent theoretical findings and advances in statistical computing, there has been a rapid development of techniques and applications in the area of missing data analysis. *Statistical Methods for Handling Incomplete Data* covers the most up-to-date statistical theories and computational methods for analyzing incomplete data. The book is primarily aimed at researchers and graduate students from statistics, and could be used as a reference by applied researchers with a good quantitative background. It includes many real data examples and simulated examples to help readers understand the methodologies.

Chapman &amp; Hall

January 2024 : 380pp

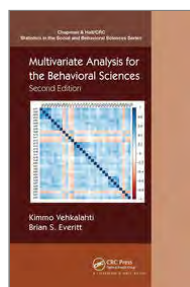
Pb: 978-1-032-11813-0 : **£45.99**Hb: 978-0-367-28054-3 : **£105**

eBook: 978-0-429-32174-0

\* For full contents and more information, visit: [www.routledge.com/9781032118130](http://www.routledge.com/9781032118130)

## 2ND EDITION

## Multivariate Analysis for the Behavioral Sciences, Second Edition



**Kimmo Vehkalahti , Brian S. Everitt**

Multivariate Analysis for the Behavioral Sciences, Second Edition is designed to show how a variety of statistical methods can be used to analyse data collected by psychologists and other behavioral scientists. Assuming some familiarity with introductory statistics, the book begins by briefly describing a variety of study designs used in the behavioral sciences, and the concept of models for data analysis. The contentious issues of p-values and confidence intervals are also discussed in the introductory chapter.

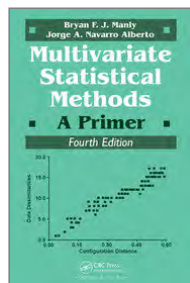
CRC Press  
September 2020 : 438pp  
Pb: 978-0-367-65675-1 : **£47.99**  
Hb: 978-0-815-38515-8 : **£79.99**  
eBook: 978-1-351-20227-5

\* For full contents and more information, visit: [www.routledge.com/9780367656751](http://www.routledge.com/9780367656751)

## 4TH EDITION

## Multivariate Statistical Methods

A Primer, Fourth Edition



**Jorge A. Navarro Alberto**

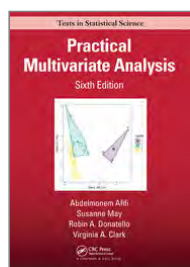
Multivariate Statistical Methods: A Primer provides an introductory overview of multivariate methods without getting too deep into the mathematical details. This fourth edition is a revised and updated version of this bestselling introductory textbook. It retains the clear and concise style of the previous editions of the book and focuses on examples from biological and environmental sciences. The major update with this edition is that R code has been included for each of the analyses described, although in practice any standard statistical package can be used.

Chapman & Hall  
October 2016 : 269pp  
Pb: 978-1-498-72896-6 : **£53.99**  
Hb: 978-1-138-46942-6 : **£185**  
eBook: 978-1-315-38213-5

\* For full contents and more information, visit: [www.routledge.com/9781498728966](http://www.routledge.com/9781498728966)

## 6TH EDITION

## Practical Multivariate Analysis



**Abdelmonem Afifi , Susanne May , Robin Donatello , Virginia A. Clark**

This is the sixth edition of a popular textbook on multivariate analysis. Well-regarded for its practical and accessible approach, with excellent examples and good guidance on computing, the book is particularly popular for teaching outside statistics, i.e. in epidemiology, social science, business, etc. The sixth edition has been updated with a new chapter on data visualization, and many new updates and references throughout. This new edition will enable the book to continue as one of the leading textbooks in the area, particularly for non-statisticians.

Chapman & Hall  
June 2021 : 434pp  
Pb: 978-1-032-08847-1 : **£45.99**  
Hb: 978-1-138-70222-6 : **£86.99**  
eBook: 978-1-315-20373-7

\* For full contents and more information, visit: [www.routledge.com/9781032088471](http://www.routledge.com/9781032088471)

## Multivariate Statistics

Classical Foundations and Modern Machine Learning



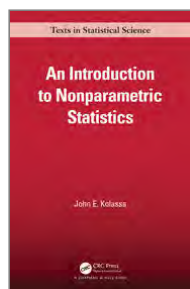
**Hemant Ishwaran** University of Miami, U.S.A

This book explores multivariate statistics from both traditional and modern perspectives. The first section covers core topics like multivariate normality, MANOVA, discrimination, PCA, and canonical correlation analysis. The second section includes modern concepts such as gradient boosting, random forests, variable importance, and causal inference. Another central theme is the concept of training error. While introductory courses often emphasize that reducing training error can lead to overfitting, training error is also known as empirical risk. Empirical risk is vital in statistical learning theory and is key to determining whether learning is possible.

Chapman & Hall  
March 2025 : 486pp  
Hb: 978-1-032-75879-4 : £125

\* For full contents and more information, visit: [www.routledge.com/9781032758794](http://www.routledge.com/9781032758794)

## An Introduction to Nonparametric Statistics



**John E. Kolassa**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

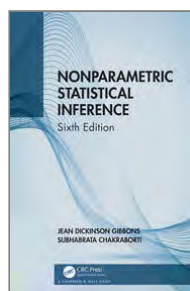
This book presents the theory and practice of non-parametric statistics, with an emphasis on motivating principals. The course is a combination of traditional rank based methods and more computationally-intensive topics like density estimation, kernel smoothers in regression, and robustness. The text is aimed at MS students.

Chapman & Hall  
September 2020 : 224pp  
Hb: 978-0-367-19484-0 : **£86.99**  
eBook: 978-0-429-20275-9

\* For **full contents** and more information, visit: [www.routledge.com/9780367194840](http://www.routledge.com/9780367194840)

6TH EDITION

## Nonparametric Statistical Inference



**Jean Dickinson Gibbons , Subhabrata Chakraborti**

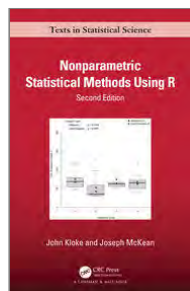
Since its first publication in 1971, Nonparametric Statistical Inference has been widely regarded as the source for learning about nonparametrics. The sixth edition carries on this tradition and incorporates computer solutions based on R and has been thoroughly revised and rewritten to make it more readable and reader-friendly. All of the R solutions are new and make this book much more useful for applications in the modern times. It has been updated throughout and contains 100 new citations, including some of the most recent, to make it more current and useful for researchers.

Chapman & Hall  
December 2020 : 694pp  
Hb: 978-1-138-08744-6 : **£105**  
eBook: 978-1-315-11047-9

\* For **full contents** and more information, visit: [www.routledge.com/9781138087446](http://www.routledge.com/9781138087446)

2ND EDITION

## Nonparametric Statistical Methods Using R



**John Kloeke , Joseph McKean**

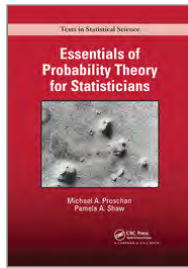
*Series: Chapman & Hall/CRC Texts in Statistical Science*

This thoroughly updated and expanded second edition covers traditional nonparametric methods and rank-based analyses. Two new chapters covering multivariate analyses and big data have been added. Core classical nonparametrics chapters on one- and two-sample problems have been expanded to include discussions on ties as well as power and sample size determination. The book is suitable for advanced undergraduate and graduate students in statistics and data science, and students of other majors with a solid background in statistical methods including regression and ANOVA. It will also be of use to researchers working with nonparametric and rank-based methods in practice.

Chapman & Hall  
May 2024 : 480pp  
Hb: 978-0-367-65135-0 : **£68.99**  
eBook: 978-1-003-03961-7

\* For **full contents** and more information, visit: [www.routledge.com/9780367651350](http://www.routledge.com/9780367651350)

## Essentials of Probability Theory for Statisticians



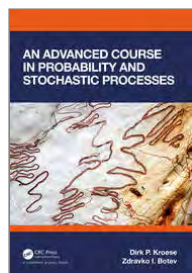
**Michael A. Proschan , Pamela A. Shaw**

This text provides graduate students with a rigorous treatment of probability theory, with an emphasis on results central to theoretical statistics. It presents classical probability theory motivated with illustrative examples in biostatistics, such as outlier tests, monitoring clinical trials, and using adaptive methods to make design changes based on accumulating data. In addition, counterexamples further clarify nuances in meaning and expose common fallacies in logic. The authors explain different methods of proofs and show how they are useful for establishing classic probability results.

Chapman & Hall  
December 2019 : 344pp  
Pb: 978-0-367-87163-5 : **£58.99**  
Hb: 978-1-498-70419-9 : **£86.99**  
eBook: 978-1-315-37057-6

\* For full contents and more information, visit: [www.routledge.com/9780367871635](http://www.routledge.com/9780367871635)

## An Advanced Course in Probability and Stochastic Processes



**Dirk P. Kroese** University of Queensland, Australia,  
**Zdravko Botev** University of New South Wales, Australia

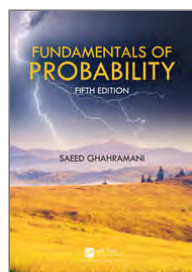
An Advanced Course in Probability and Stochastic Processes provides a modern and rigorous treatment of probability theory and stochastic processes at an upper undergraduate and graduate level. Starting with the foundations of measure theory, this book introduces the key concepts of probability theory in an accessible way, providing full proofs and extensive examples and illustrations. Fundamental stochastic processes like Gaussian processes, Poisson random measures, Lévy processes, Markov processes, and Itô processes are explored in considerable depth. This book is meant for students and researchers who have a solid mathematical background.

Chapman & Hall  
 December 2023 : 378pp  
 Hb: 978-1-032-32046-5 : **£97.99**  
 eBook: 978-1-003-31501-8

\* For full contents and more information, visit: [www.routledge.com/9781032320465](http://www.routledge.com/9781032320465)

5TH EDITION

## Fundamentals of Probability



**Saeed Ghahramani** Western New England University,  
 Springfield, Massachusetts, USA

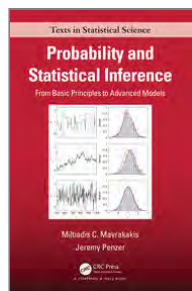
This one- or two-term calculus-based basic probability text is written for majors in mathematics, physical sciences, engineering, statistics, actuarial science, business and finance, operations research, and computer science. It presents probability in a natural way: through interesting and instructive examples and exercises that motivate the theory, definitions, theorems, and methodology. This book is mathematically rigorous and, at the same time, closely matches the historical development of probability. Whenever appropriate, historical remarks are included, and the 2096 examples and exercises have been designed to arouse curiosity and encourage students to delve into the theory.

Chapman & Hall  
 May 2024 : 700pp  
 Hb: 978-1-032-36608-1 : **£120**  
 IEPB: 978-1-032-80353-1 : **£49.99**  
 eBook: 978-1-003-33289-3

\* For full contents and more information, visit: [www.routledge.com/9781032366081](http://www.routledge.com/9781032366081)

## Probability and Statistical Inference

From Basic Principles to Advanced Models



**Miltiadis C. Mavrakakis** Imperial College London,  
 United Kingdom, **Jeremy Penzer** London School of  
 Economics, UK

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This book covers aspects of probability, distribution theory, and inference that are fundamental to a proper understanding of data analysis and statistical modelling. It presents these topics in an accessible manner without sacrificing mathematical rigour, bridging the gap between the many excellent introductory books and the more advanced, graduate-level texts. The book introduces and explores techniques that are relevant to modern practitioners, while being respectful to the history of statistical inference. It seeks to provide a thorough grounding in both the theory and application of statistics, with even the more abstract parts placed in the context of a practical setting.

Chapman & Hall  
 September 2022 : 444pp  
 Pb: 978-0-367-74912-5 : **£45.99**  
 Hb: 978-1-584-88939-7 : **£120**  
 eBook: 978-1-315-36663-0

\* For full contents and more information, visit: [www.routledge.com/9780367749125](http://www.routledge.com/9780367749125)

## Computational Aspects of Psychometric Methods

With R



**Patricia Martinková** Sr. researcher, Institute Comp. Sci, Czech Academy of Sci., **Adéla Hladká** Postdoc Fellow, Institute of Comp. Sci, Czech Academy of Sci.

*Series: Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

This book covers the computational aspects of psychometric methods involved in developing measurement instruments and analyzing measurement data in social sciences. It covers the main topics of psychometrics such as validity, reliability, item analysis, item response theory models, and computerized adaptive testing. The book is intended for a wide range of researchers in the field of educational, psychological, and health-related measurements, and also those developing measurement instruments and for those collecting and analyzing data from behavioral measurements, who are searching for a deeper understanding of underlying models and further development of analytical skills.

Chapman & Hall

July 2023 : 348pp

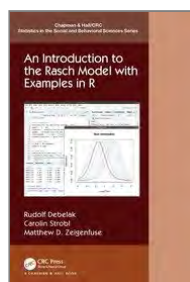
Pb: 978-0-367-51539-3 : **£57.99**

Hb: 978-0-367-51538-6 : **£145**

eBook: 978-1-003-05431-3

\* For **full contents** and more information, visit: [www.routledge.com/9780367515393](http://www.routledge.com/9780367515393)

## An Introduction to the Rasch Model with Examples in R



**Rudolf Debelak , Carolin Strobl , Matthew D. Zeigenfuse**

*Series: Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

This book offers a clear, comprehensive introduction to the Rasch model along with practical examples in the free, open-source software R. It is accessible for readers without a background in psychometrics or statistics, while also providing detailed explanations of the relevant mathematical and statistical concepts for readers who want to gain a deeper understanding. Its worked examples in R demonstrate how to apply the methods to real-world examples and how to interpret the resulting output.

Chapman & Hall

June 2022 : 322pp

Pb: 978-1-138-71046-7 : **£54.99**

Hb: 978-1-032-26558-2 : **£150**

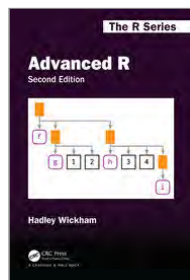
eBook: 978-1-315-20062-0

\* For **full contents** and more information, visit: [www.routledge.com/9781138710467](http://www.routledge.com/9781138710467)



2ND EDITION

## Advanced R, Second Edition



**Hadley Wickham**

*Series: Chapman & Hall/CRC The R Series*

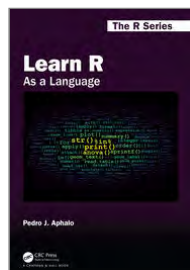
Advanced R presents useful tools and techniques for attacking many types of R programming problems, helping you avoid mistakes and dead ends. With more than ten years of experience programming in R, the author illustrates the elegance, beauty, and flexibility at the heart of R. The book develops the necessary skills to produce quality code that can be used in a variety of circumstances. You will learn: The fundamentals of R, including standard data types and functions Functional programming as a useful framework for solving wide classes of problems The positives and negatives of metaprogramming How to write fast, memory-efficient code

Chapman & Hall  
May 2019 : 604pp  
Pb: 978-0-815-38457-1 : **£49.99**  
Hb: 978-0-367-25537-4 : **£175**  
eBook: 978-1-351-20131-5

\* For full contents and more information, visit: [www.routledge.com/9780815384571](http://www.routledge.com/9780815384571)

## Learn R

As a Language



**Pedro J. Aphalo** University of Helsinki, Faculty of Biological and Environmental Sciences

*Series: Chapman & Hall/CRC The R Series*

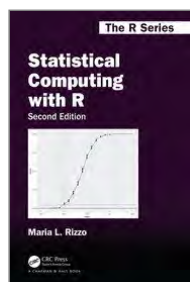
This book teaches how to use the R for data analysis. However, it goes beyond a cookbook approach, and instead focuses on how to use R to flexibly explore and analyse data to efficiently and reliably extract information. Using this book, the reader will become confident and reasonably independent in the use of R when faced with new challenges. They will learn their way around in the R "ecosystem" and pick it up like a child would learn a language –explore, employ it, learn from mistakes, and recognise patterns and the coding philosophy behind R. The book is for everyone who wants to use R for complex statistical analysis and who wants to gain more self-confidence in their use of R.

Chapman & Hall  
July 2020 : 364pp  
Pb: 978-0-367-18253-3 : **£58.99**  
Hb: 978-0-367-18255-7 : **£155**  
eBook: 978-0-429-06034-2

\* For full contents and more information, visit: [www.routledge.com/9780367182533](http://www.routledge.com/9780367182533)

2ND EDITION

## Statistical Computing with R, Second Edition



**Maria L. Rizzo** Bowling Green State University, Ohio, USA

*Series: Chapman & Hall/CRC The R Series*

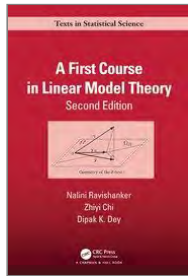
Computational statistics and statistical computing are two areas that employ computational, graphical, and numerical approaches to solve statistical problems, making the versatile R language an ideal computing environment for these fields. This second edition continues to encompass the traditional core material of computational statistics, with an emphasis on using the R language via an examples-based approach. It includes R code for all examples and R notes to help explain the R programming concepts. This edition also features a new chapter on nonparametric regression and smoothing.

Chapman & Hall  
March 2019 : 490pp  
Hb: 978-1-466-55332-3 : **£68.99**  
eBook: 978-0-429-19276-0

\* For full contents and more information, visit: [www.routledge.com/9781466553323](http://www.routledge.com/9781466553323)

2ND EDITION

## A First Course in Linear Model Theory



**Nalini Ravishanker** University of Connecticut, Storrs, USA, **Zhiyi Chi** University of Connecticut, **Dipak K. Dey** University of Connecticut, Storrs, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

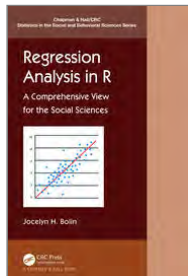
This book represents an entirely fresh approach for introducing to students the mathematical and statistical concepts and tools that form the backbone for the study of the theory and applications of linear models, both univariate and multivariate. This second edition features several new topics that are extremely relevant to the current research in statistical methodology. Revised or expanded topics include analysis of covariance, Bayesian linear and generalized linear model, nonlinear regression, ridge regression, resistant and robust regression, generalized linear models, model selection, multiple comparisons, hierarchical linear models, random effects and variance components.

Chapman & Hall  
October 2021 : 530pp  
Hb: 978-1-439-85805-9 : **£84.99**  
eBook: 978-1-315-15665-1

\* For full contents and more information, visit: [www.routledge.com/9781439858059](http://www.routledge.com/9781439858059)

## Regression Analysis in R

A Comprehensive View for the Social Sciences



**Jocelyn E. Bolin** Ball State University, Department of Educational Psychology

*Series: Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

Regression Analysis in R: A Comprehensive View for the Social Sciences covers the basic applications of multiple linear regression all the way through to more complex regression applications and extensions. Written for graduate level students of social science disciplines this book walks readers through bivariate correlation giving them a solid framework from which to expand into more complicated regression models. Concepts are demonstrated using R software and real data examples.

Chapman & Hall  
July 2022 : 192pp  
Pb: 978-0-367-27258-6 : **£58.99**  
Hb: 978-1-032-25775-4 : **£150**  
eBook: 978-0-429-29584-3

\* For full contents and more information, visit: [www.routledge.com/9780367272586](http://www.routledge.com/9780367272586)

## Advanced Regression Models with SAS and R



**Olga Korosteleva**

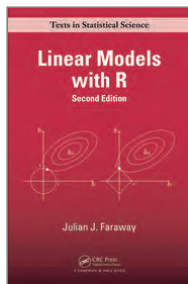
The material covered by this book consists of a collection of regression models beyond linear regression. The linear regression model is presented in the first chapter in order to refresh the reader's memory, emphasize certain points, and set the notation. The subsequent chapters talk about models for categorical data, count data, proportions, longitudinal data, hierarchical data, and others.

Chapman & Hall  
December 2020 : 324pp  
Pb: 978-0-367-73242-4 : **£45.99**  
Hb: 978-1-138-04901-7 : **£86.99**  
eBook: 978-1-315-16982-8

\* For full contents and more information, visit: [www.routledge.com/9780367732424](http://www.routledge.com/9780367732424)

2ND EDITION

## Linear Models with R



**Julian J. Faraway** University of Bath, UK

*Series: Chapman & Hall/CRC Texts in Statistical Science*

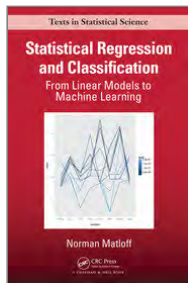
Like its widely praised, best-selling predecessor, this second edition explains how to use linear models in physical science, engineering, social science, and business applications. The material on interpreting linear models now distinguishes the main applications of prediction and explanation and introduces elementary notions of causality. This edition also covers QR decomposition, splines, additive models, Lasso, multiple imputation, and false discovery rates. It extensively uses R's ggplot2 graphics package in addition to base graphics.

Chapman & Hall  
July 2014 : 286pp  
Hb: 978-1-439-88733-2 : **£86.99**  
eBook: 978-0-429-11171-6

\* For full contents and more information, visit: [www.routledge.com/9781439887332](http://www.routledge.com/9781439887332)

## Statistical Regression and Classification

From Linear Models to Machine Learning



**Norman Matloff**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

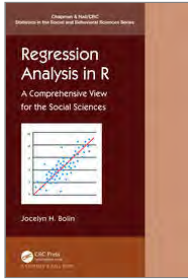
This text provides a modern introduction to regression and classification with an emphasis on big data and R. Each chapter is partitioned into a main body section and an "extras" section. The main body uses math stat very sparingly and always in the context of something concrete, which means that readers can skip the math stat content entirely if they wish. The "extras" section is for those who feel comfortable with analysis using math stat.

Chapman & Hall  
August 2017 : 532pp  
Pb: 978-1-498-71091-6 : **£68.99**  
Hb: 978-1-138-06646-5 : **£150**  
eBook: 978-1-315-11958-8

\* For full contents and more information, visit: [www.routledge.com/9781498710916](http://www.routledge.com/9781498710916)

## Regression Analysis in R

A Comprehensive View for the Social Sciences



**Jocelyn E. Bolin** Ball State University, Department of Educational Psychology

*Series: Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

Regression Analysis in R: A Comprehensive View for the Social Sciences covers the basic applications of multiple linear regression all the way through to more complex regression applications and extensions. Written for graduate level students of social science disciplines this book walks readers through bivariate correlation giving them a solid framework from which to expand into more complicated regression models. Concepts are demonstrated using R software and real data examples.

Chapman & Hall  
July 2022 : 192pp

Pb: 978-0-367-27258-6 : **£58.99**

Hb: 978-1-032-25775-4 : **£150**

eBook: 978-0-429-29584-3

\* For full contents and more information, visit: [www.routledge.com/9780367272586](http://www.routledge.com/9780367272586)

## Scientific Research and Methodology

An Introduction to Quantitative Research and Statistics



**Peter Dunn** Associate Professor, Uni of Sushine Coast.

This textbook is designed for teaching quantitative research in the scientific, health and engineering disciplines at first-year undergraduate level, with an emphasis on statistics. It covers the research process, including asking research questions, research design, data collection, summarising data, analysis and communication. Statistical topics include numerical summary methods (such as means, odds ratios and identification of outliers), graphing (such as histograms, case-profile plots and scatterplots), confidence intervals and hypothesis testing. Almost every dataset used is a real dataset, and is available online or in an associated R package SRMData.

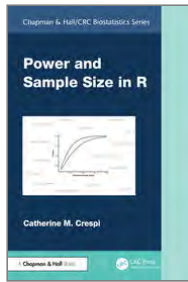
Chapman & Hall

July 2025 : 560pp

Hb: 978-1-032-49672-6 : £89.99

\* For full contents and more information, visit: [www.routledge.com/9781032496726](http://www.routledge.com/9781032496726)

## Power and Sample Size in R



**Catherine M. Crespi**

*Series: Chapman & Hall/CRC Biostatistics Series*

Power and Sample Size in R guides the reader through power and sample size calculations for a wide variety of study outcomes and designs and illustrates their implementation in R software. It is designed to be used as a learning tool for students as well as a resource for experienced statisticians and investigators. The book demonstrates calculations in R, and only a basic proficiency in R is assumed. By emphasizing statistical thinking about the factors that influence power for different study designs and outcomes as well as providing R code, this book equips the reader with the knowledge and tools to perform their own calculations with confidence.

Chapman & Hall  
February 2025 : 370pp  
Hb: 978-1-138-59162-2 : **£74.99**  
eBook: 978-0-429-48878-8

\* For full contents and more information, visit: [www.routledge.com/9781138591622](http://www.routledge.com/9781138591622)

## SAS Programming for Elementary Statistics

Getting Started



**Carla L. Goad** Oklahoma State University, Department of Statistics

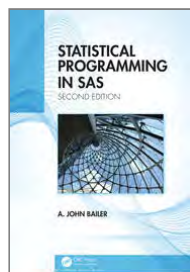
This textbook provides an introduction to SAS Programming for elementary statistical methods. It does not require any previous experience of SAS, but the reader is assumed to have a basic understanding of statistics. It covers the basics of programming, including creation of datasets in SAS, debugging a program, and the overall construction of a SAS program. It covers all DATA Step operations, t-tests, confidence intervals, simple linear regression, and ANOVA. The book is full of examples and computer-based exercises, and has been developed from the vast experience of the author teaching from the material over many years.

Chapman & Hall  
December 2020 : 398pp  
Pb: 978-1-138-58902-5 : **£58.99**  
Hb: 978-1-138-58909-4 : **£155**  
eBook: 978-0-429-49190-0

\* For full contents and more information, visit: [www.routledge.com/9781138589025](http://www.routledge.com/9781138589025)

2ND EDITION

## Statistical Programming in SAS



**A. John Bailer**

The book focuses on good programming and coding practice for producing data sets for later analyses, using simulation studies to explore statistical concepts and employing computationally intensive methods. Many of the topics included in the SAS Base Certification exam are included in this book along with topics such as SQL and Macros that are extensively considered in the SAS Advanced Certification Exam. Topics beyond either of these exams are also discussed such as high-quality graphical displays and text processing.

Chapman & Hall  
December 2019 : 378pp  
Pb: 978-0-367-35797-9 : **£71.99**  
Hb: 978-0-367-35800-6 : **£175**  
eBook: 978-0-429-34184-7

\* For full contents and more information, visit: [www.routledge.com/9780367357979](http://www.routledge.com/9780367357979)

2ND EDITION

## Modern Statistics for the Social and Behavioral Sciences

A Practical Introduction, Second Edition

**Rand Wilcox**

Designed for a two-semester, introductory course for graduate students in the social sciences, this text illustrates how to use R to apply both standard and modern methods to correct known problems with classic techniques. Numerous illustrations provide a conceptual basis for understanding why practical problems with classic methods were missed for so many years, and why modern techniques have practical value. The second edition will add coverage of advances in regression, such as new insights regarding smoothers. New results on comparing medians would be included and quite a few improvements relevant to ANCOVA will be added. In addition, new R functions will be described.

Chapman &amp; Hall

December 2020 : 754pp

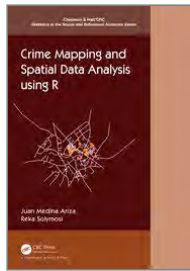
Pb: 978-0-367-73596-8 : **£45.99**Hb: 978-1-498-79678-1 : **£115**

eBook: 978-1-315-15448-0

\* For full contents and more information, visit: [www.routledge.com/9780367735968](http://www.routledge.com/9780367735968)



## Crime Mapping and Spatial Data Analysis using R



**Juan Medina Ariza, Reka Solymosi**

*Series: Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

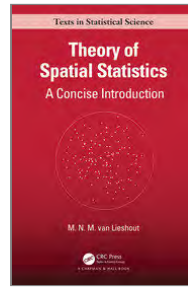
Practical introduction to crime mapping and spatial data analysis using R and R Studio. Crime mapping and analysis of crime problems using spatially explicit data has become a central feature of law enforcement agencies across the world. Criminology degrees have begun to adapt their curriculums to foster the skills required for these jobs.

Chapman & Hall  
April 2023 : 450pp  
Hb: 978-0-367-72469-6 : **£76.99**  
eBook: 978-1-003-15491-4

\* For full contents and more information, visit: [www.routledge.com/9780367724696](http://www.routledge.com/9780367724696)

## Theory of Spatial Statistics

A Concise Introduction



**M.N.M. van Lieshout**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

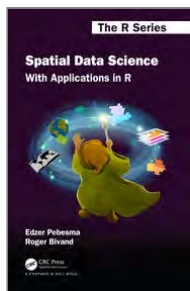
Spatial data are collected in various ways, for example, weather maps, soil samples, incident patterns, microscopical slices, satellite, radar, or X-ray images. The statistical analysis of spatial data is treated as a separate topic, as it is different from classical statistical data in a number of ways. This book presents a concise introduction to the theory underlying the analysis of the main types of spatial data. It includes examples to illustrate the topics, including R code for their implementation, as well as exercises to support course teaching and self-study.

Chapman & Hall  
March 2019 : 182pp  
Pb: 978-0-367-14639-9 : **£58.99**  
Hb: 978-0-367-14642-9 : **£155**  
eBook: 978-0-429-05286-6

\* For full contents and more information, visit: [www.routledge.com/9780367146399](http://www.routledge.com/9780367146399)

## Spatial Data Science

With Applications in R



**Edzer Pebesma** Insititte for Geoinformatics, University of Muenster, Germany, **Roger Bivand**

*Series: Chapman & Hall/CRC The R Series*

This is a book for data scientists with intermediate R knowledge. The book gives a detailed explanation of the core spatial software packages for R: sf for simple feature access, and stars for raster and vector data cubes – array data with spatial and temporal dimensions. It also shows how geometrical operations change when going from a flat space to the surface of a sphere. This is what sf and stars use when coordinates are not projected. Separate chapters detail a variety of plotting approaches for spatial maps using R, and different ways of handling very large vector or raster (imagery) datasets, locally, in databases, or in the cloud.

Chapman & Hall  
May 2023 : 314pp  
Hb: 978-1-138-31118-3 : **£76.99**  
eBook: 978-0-429-45901-6

\* For full contents and more information, visit: [www.routledge.com/9781138311183](http://www.routledge.com/9781138311183)

## Spatial Linear Models for Environmental Data



**Dale L. Zimmerman** Dept. of Statistics, University of Iowa, **Jay M. Ver Hoef**

*Series: Chapman & Hall/CRC Applied Environmental Statistics*

Many applied researchers equate spatial statistics with prediction or mapping, but this book naturally extends linear models, which includes regression and ANOVA as pillars of applied statistics, to achieve a more comprehensive treatment of the analysis of spatially autocorrelated data. Spatial Linear Models for Environmental Data, aimed at students and professionals with a master's level training in statistics, presents a unique, applied, and thorough treatment of spatial linear models within a statistics framework. By mimicking their examples and R code, readers will be able to fit spatial linear models to their data and draw proper scientific conclusions.

Chapman & Hall  
April 2024 : 416pp  
Hb: 978-0-367-18334-9 : **£81.99**  
eBook: 978-0-429-06087-8

\* For full contents and more information, visit: [www.routledge.com/9780367183349](http://www.routledge.com/9780367183349)

## Computer Intensive Methods in Statistics



**Silvelyn Zwanzig** Uppsala University, Sweden, **Behrang Mahjani** Uppsala University, Sweden

This textbook gives an overview of statistical methods that have been developed during the last years due to increasing computer use, including random number generators, Monte Carlo methods, Markov Chain Monte Carlo (MCMC) methods, Bootstrap, EM algorithms, SIMEX, variable selection, density estimators, kernel estimators, orthogonal and local polynomial estimators, wavelet estimators, splines, and model assessment. Computer Intensive Methods in Statistics is written for students at graduate level, but can also be used by practitioners.

Chapman & Hall

December 2019 : 226pp

Pb: 978-0-367-19423-9 : **£54.99**

Hb: 978-0-367-19425-3 : **£150**

eBook: 978-0-429-20232-2

\* For full contents and more information, visit: [www.routledge.com/9780367194239](http://www.routledge.com/9780367194239)

2ND EDITION

## Statistical Computing with R, Second Edition



**Maria L. Rizzo** Bowling Green State University, Ohio, USA

*Series: Chapman & Hall/CRC The R Series*

Computational statistics and statistical computing are two areas that employ computational, graphical, and numerical approaches to solve statistical problems, making the versatile R language an ideal computing environment for these fields. This second edition continues to encompass the traditional core material of computational statistics, with an emphasis on using the R language via an examples-based approach. It includes R code for all examples and R notes to help explain the R programming concepts. This edition also features a new chapter on nonparametric regression and smoothing.

Chapman & Hall

March 2019 : 490pp

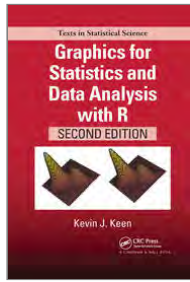
Hb: 978-1-466-55332-3 : **£68.99**

eBook: 978-0-429-19276-0

\* For full contents and more information, visit: [www.routledge.com/9781466553323](http://www.routledge.com/9781466553323)

2ND EDITION

## Graphics for Statistics and Data Analysis with R

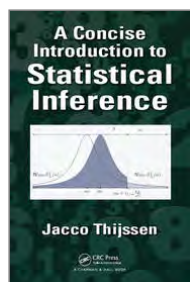
**Kevin J. Keen**

The book presents the basic principles of sound graphical design and applies these principles to engaging examples using the graphical functions available in R. It offers a wide variety of graphical displays for the presentation of data, including modern tools for data visualization and representation. The second edition will add examples with the R package ggplot2 in addition to examples with the base and lattice packages in the first edition.

Chapman & Hall  
December 2020 : 612pp  
Pb: 978-0-367-73444-2 : **£45.99**  
Hb: 978-1-498-77983-8 : **£79.99**  
eBook: 978-0-429-03106-9

\* For full contents and more information, visit: [www.routledge.com/9780367734442](http://www.routledge.com/9780367734442)

## A Concise Introduction to Statistical Inference



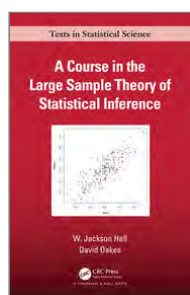
**Jacco Thijssen** The University of York, UK

This short book introduces the main ideas of statistical inference in a way that is both user friendly and mathematically sound. Particular emphasis is placed on the common foundation of many models used in practice. In addition, the book focuses on the formulation of appropriate statistical models to study problems in business, economics, and the social sciences, as well as on how to interpret the results from statistical analyses. The book will be useful to students who are interested in rigorous applications of statistics to problems in business, economics and the social sciences, as well as students who have studied statistics in the past, but need a more solid grounding in statistical techniques to further their careers.

Chapman & Hall  
December 2016 : 230pp  
Pb: 978-1-498-75577-1 : **£58.99**  
Hb: 978-1-138-46967-9 : **£185**  
eBook: 978-1-315-38023-0

\* For full contents and more information, visit: [www.routledge.com/9781498755771](http://www.routledge.com/9781498755771)

## A Course in the Large Sample Theory of Statistical Inference



**W. Jackson Hall, David Oakes** University of Rochester, Rochester, NY, USA

Series: *Chapman & Hall/CRC Texts in Statistical Science*

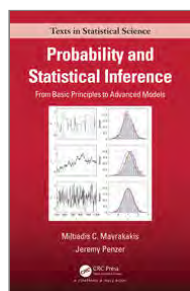
This book provides an accessible but rigorous introduction to asymptotic theory in parametric statistical models. Asymptotic results for estimation and testing are derived using the "moving alternative" formulation due to R. A. Fisher and L. Le Cam. Later chapters include discussions of linear rank statistics and of chi-squared tests for contingency table analysis, including situations where parameters are estimated from the complete ungrouped data. The book is based on lecture notes prepared by the first author, subsequently edited, expanded and updated by the second author. Familiarity with undergraduate probability and statistics is necessary.

Chapman & Hall  
December 2023 : 320pp  
Hb: 978-1-498-72606-1 : **£86.99**  
eBook: 978-0-429-16008-0

\* For full contents and more information, visit: [www.routledge.com/9781498726061](http://www.routledge.com/9781498726061)

## Probability and Statistical Inference

From Basic Principles to Advanced Models



**Miltiadis C. Mavroukakis** Imperial College London, United Kingdom, **Jeremy Penzer** London School of Economics, UK

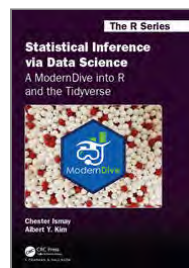
Series: *Chapman & Hall/CRC Texts in Statistical Science*

This book covers aspects of probability, distribution theory, and inference that are fundamental to a proper understanding of data analysis and statistical modelling. It presents these topics in an accessible manner without sacrificing mathematical rigour, bridging the gap between the many excellent introductory books and the more advanced, graduate-level texts. The book introduces and explores techniques that are relevant to modern practitioners, while being respectful to the history of statistical inference. It seeks to provide a thorough grounding in both the theory and application of statistics, with even the more abstract parts placed in the context of a practical setting.

Chapman & Hall  
September 2022 : 444pp  
Pb: 978-0-367-74912-5 : **£45.99**  
Hb: 978-1-584-88939-7 : **£120**  
eBook: 978-1-315-36663-0

\* For full contents and more information, visit: [www.routledge.com/9780367749125](http://www.routledge.com/9780367749125)

## Statistical Inference via Data Science: A ModernDive into R and the Tidyverse



**Chester Ismay** DataCamp, **Albert Y. Kim**

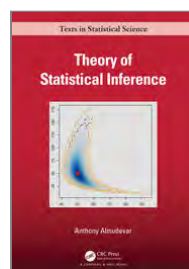
Series: *Chapman & Hall/CRC The R Series*

This is a modern textbook in statistical inference, using the principles of data science through R and the Tidyverse. It assumes minimal background knowledge of the reader: there is no algebra, no calculus, and no prior programming/coding experience. It is designed to be a gentle introduction to the practice of analyzing data and answering questions using data the way data scientists, statisticians, data journalists, and other researchers would. This book is suitable for teaching a first course in statistical inference at undergraduate level.

Chapman & Hall  
December 2019 : 460pp  
Pb: 978-0-367-40982-1 : **£68.99**  
Hb: 978-0-367-40987-6 : **£175**  
eBook: 978-0-367-40991-3

\* For full contents and more information, visit: [www.routledge.com/9780367409821](http://www.routledge.com/9780367409821)

## Theory of Statistical Inference



**Anthony Almudevar** University of Rochester, Rochester, NY, USA

Series: *Chapman & Hall/CRC Texts in Statistical Science*

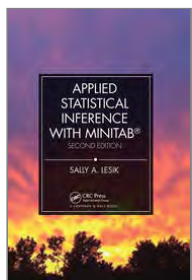
Theory of Statistical Inference is concerned with the development of a type of optimization theory which can be used to inform the choice of statistical methodology. Of course, this would be pointless without reference to such methods. We are simply noting that they are included in support of the larger goal. This book distinguishes itself from other graduate textbooks because it is written from the point of view that some degree of understanding of measure theory, as well as other branches of mathematics, which include topology, group theory and complex analysis, should be a part of the canon of statistical inference.

Chapman & Hall  
May 2024 : 470pp  
Pb: 978-0-367-50280-5 : **£44.99**  
Hb: 978-0-367-48875-8 : **£105**  
eBook: 978-1-003-04934-0

\* For full contents and more information, visit: [www.routledge.com/9780367502805](http://www.routledge.com/9780367502805)

2ND EDITION

## Applied Statistical Inference with MINITAB®, Second Edition

**Sally A. Lesik**

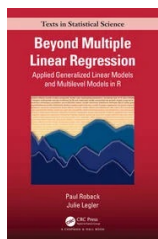
This book covers material that is typically presented in an intermediate course in statistics at the undergraduate level and a first course in applied statistics at the graduate level. Topics include basic statistical inference, regression, and ANOVA. More advanced topics include non-parametric statistics, logistic regression, and goodness-of-fit tests. One key feature of this book is that it is written to provide readers with the foundation necessary to study more advanced topics in statistics.

Chapman & Hall  
March 2021 : 496pp  
Pb: 978-0-367-78057-9 : **£45.99**  
Hb: 978-1-498-77998-2 : **£120**  
eBook: 978-0-429-44495-1

\* For full contents and more information, visit: [www.routledge.com/9780367780579](http://www.routledge.com/9780367780579)

## Beyond Multiple Linear Regression

Applied Generalized Linear Models And Multilevel Models in R



**Paul Roback** St. Olaf College, Northfield, Minnesota, USA,  
**Julie Legler**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

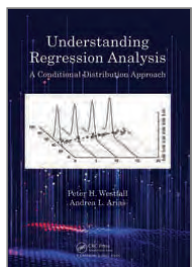
Designed for advanced undergraduate or non-major graduate students in Advanced Statistical Modeling or Regression II as well as courses on Generalized Linear Models, Longitudinal Data Analysis, Correlated Data, or Multilevel Models, this text offers a unified discussion of generalized linear models and correlated data methods. It explores case studies involving real data and details material on R at the end of each chapter. A solutions manual is available for qualified instructors.

Chapman & Hall  
May 2024 : 436pp  
Pb: 978-0-367-68044-2 : **£44.99**  
Hb: 978-1-439-88538-3 : **£84.99**  
eBook: 978-0-429-06666-5

\* For full contents and more information, visit: [www.routledge.com/9780367680442](http://www.routledge.com/9780367680442)

## Understanding Regression Analysis

A Conditional Distribution Approach



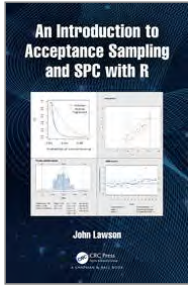
**Peter H. Westfall** Texas Tech University, Lubbock, USA,  
**Andrea L. Arias**

This book unifies diverse regression applications including the classical model, ANOVA models, generalized models including Poisson, Negative binomial, logistic, and survival, neural networks and decision trees under a common umbrella; namely, the conditional distribution model. It explains why the conditional distribution model is the correct model, also explains why the assumptions of the classical regression model are wrong. This one takes a realistic approach from the outset that all models are just approximations. The emphasis is to model Nature's processes realistically, rather than to assume that Nature works in particular, constrained ways.

Chapman & Hall  
May 2022 : 514pp  
Pb: 978-0-367-49351-6 : **£39.99**  
Hb: 978-0-367-45852-2 : **£120**  
eBook: 978-1-003-02576-4

\* For full contents and more information, visit: [www.routledge.com/9780367493516](http://www.routledge.com/9780367493516)

## An Introduction to Acceptance Sampling and SPC with R



**John Lawson** Brigham Young University, USA

In the modern, world sampling plans and the statistical calculations used in statistical quality control are done with the help of computers. To get more hands on experience in creating acceptance sampling plans and control charts necessarily involves the use of software. In industry, commercial software is often used. In this book we will focus on several R packages that can duplicate and in some cases exceed the functionality of these commercial programs. In addition to demonstrating how to use R for acceptance sampling and control charts, this book will focus on how the use of these specific tools can lead to quality improvements both within a company and within their supplier companies.

Chapman & Hall

February 2021 : 298pp

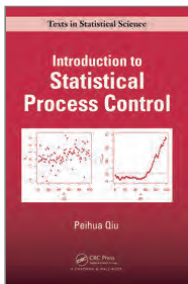
Pb: 978-0-367-55576-4 : **£49.99**

Hb: 978-0-367-56995-2 : **£135**

eBook: 978-1-003-10027-0

\* For full contents and more information, visit: [www.routledge.com/9780367555764](http://www.routledge.com/9780367555764)

## Introduction to Statistical Process Control



**Peihua Qiu**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

A major tool for quality control and management, statistical process control (SPC) monitors sequential processes, such as production lines and Internet traffic, to ensure that they work stably and satisfactorily. Along with covering traditional methods, this book describes many recent SPC methods that improve upon the more established techniques. The author—a leading researcher on SPC—shows how these methods can handle new applications. Pseudo codes are presented for important methods and all R functions and datasets are available on the author's website.

Chapman & Hall

October 2013 : 520pp

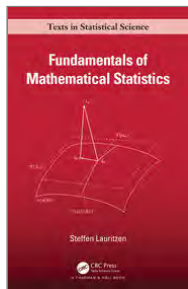
Hb: 978-1-439-84799-2 : **£110**

eBook: 978-0-429-09077-6

\* For full contents and more information, visit: [www.routledge.com/9781439847992](http://www.routledge.com/9781439847992)



## Fundamentals of Mathematical Statistics



**Steffen Lauritzen**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

This book is meant for a standard one-semester advanced undergraduate or graduate level course on Mathematical Statistics. It covers all the key topics - statistical models, linear normal models, exponential families, estimation, asymptotics of maximum likelihood, significance testing, and models for tables of counts. It assumes a good background in mathematical analysis, linear algebra, and probability, but includes an appendix with basic results from these areas. Throughout the text, there are numerous examples and graduated exercises that illustrate the topics covered, rendering the book suitable for teaching or self-study.

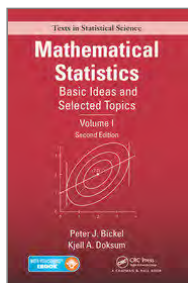
Chapman & Hall  
April 2023 : 258pp  
Hb: 978-1-032-22382-7 : **£81.99**  
eBook: 978-1-003-27235-9

\* For full contents and more information, visit: [www.routledge.com/9781032223827](http://www.routledge.com/9781032223827)

2ND EDITION

## Mathematical Statistics

Basic Ideas and Selected Topics, Volume I, Second Edition



**Peter J. Bickel** University of California, Berkeley, USA,  
**Kjell A. Doksum** University of Wisconsin, Madison, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

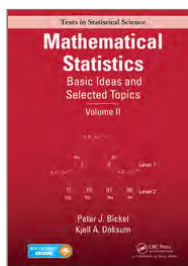
This first volume presents fundamental, classical statistical concepts at the doctorate level without using measure theory. It covers estimation, prediction, testing, confidence sets, Bayesian analysis, and the general approach of decision theory. This edition gives careful proofs of major results and explains how the theory sheds light on the properties of practical methods. The book includes in-depth examples throughout as well as many exercises at the end of each chapter.

Chapman & Hall  
April 2015 : 576pp  
Hb: 978-1-498-72380-0 : **£96.99**  
eBook: 978-0-429-17478-0

\* For full contents and more information, visit: [www.routledge.com/9781498723800](http://www.routledge.com/9781498723800)

## Mathematical Statistics

Basic Ideas and Selected Topics, Volume II



**Peter J. Bickel** University of California, Berkeley, USA,  
**Kjell A. Doksum** University of Wisconsin, Madison, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

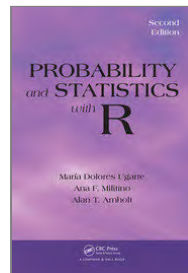
This second volume focuses on inference in non- and semiparametric models, including topics in machine learning. It not only reexamines the procedures introduced in the authors' first volume from a more sophisticated point of view but also addresses new problems originating from the analysis of estimation of functions and other complex decision procedures and large-scale data analysis. Numerous examples and problems illustrate statistical modeling and inference concepts. Measure theory is not required for understanding.

Chapman & Hall  
November 2015 : 488pp  
Hb: 978-1-498-72268-1 : **£86.99**  
eBook: 978-0-429-15382-2

\* For full contents and more information, visit: [www.routledge.com/9781498722681](http://www.routledge.com/9781498722681)

2ND EDITION

## Probability and Statistics with R



**Maria Dolores Ugarte** Public University of Navarre, Pamplona, Spain, **Ana F. Militino** Public University of Navarre, Pamplona, Spain, **Alan T. Arnholt** Appalachian State University, Boone, North Carolina, USA

Since the publication of the popular first edition, the contributed R packages on CRAN have increased from around 1,000 to over 6,000. This second edition explores how some of these new packages make analysis easier and more intuitive as well as create more visually pleasing graphs. Along with adding new examples and exercises, this edition improves the existing examples, problems, concepts, data, and functions. Data sets, R functions, and more are available online.

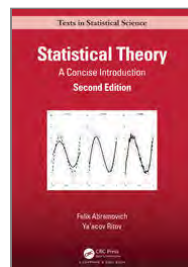
Chapman & Hall  
July 2015 : 984pp  
Hb: 978-1-466-50439-4 : **£96.99**  
eBook: 978-0-429-09614-3

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2ND EDITION

## Statistical Theory

A Concise Introduction



**Felix Abramovich** Tel Aviv University, Israel, **Ya'acov Ritov** The Hebrew University of Jerusalem, Israel

*Series: Chapman & Hall/CRC Texts in Statistical Science*

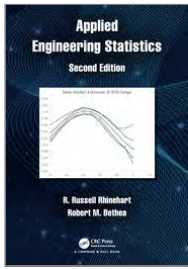
Designed for a one-semester advanced undergraduate or graduate statistical theory course, this book clearly explains the underlying ideas, mathematics, and principles of major statistical concepts, including parameter estimation, confidence intervals, hypothesis testing, asymptotic analysis, Bayesian inference, linear models, nonparametric statistics, and elements of decision theory. It introduces these topics on a clear intuitive level using illustrative examples in addition to the formal definitions, theorems, and proofs. Based on the authors' lecture notes, the book is self-contained, which maintains a proper balance between the clarity and rigor of exposition.

Chapman & Hall  
December 2022 : 236pp  
Hb: 978-1-032-00745-8 : **£76.99**  
eBook: 978-1-003-17540-7

\* For full contents and more information, visit: [www.routledge.com/9781032007458](http://www.routledge.com/9781032007458)

2ND EDITION

## Applied Engineering Statistics



**R. Russell Rhinehart, Robert M. Bethea** Texas Tech University, Lubbock, USA

Thoroughly updated throughout, this second edition will continue to be about the practicable methods of statistical applications for engineers, and as well for scientists and people in business. Contrasting a mathematical and abstract orientation of many statistics texts, which expresses the science/math values of researchers, this book presents the fundamental concepts, provides supporting derivation, and focuses on the application to concrete examples and the interpretation of outcomes.

CRC Press

May 2024 : 500pp

Pb: 978-1-032-11949-6 : **£45.99**

Hb: 978-1-032-11948-9 : **£84.99**

eBook: 978-1-003-22233-0

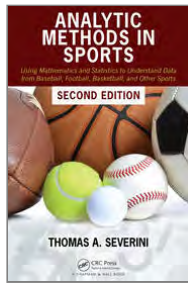
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2ND EDITION

## Analytic Methods in Sports

Using Mathematics and Statistics to Understand Data from Baseball, Football, Basketball, and Other Sports



**Thomas A Severini** Department of Statistics,  
Northwestern University, USA

Analytic Methods in Sports: Using Mathematics and Statistics to Understand Data from Baseball, Football, Basketball, and Other Sports, 2nd Edition provides a concise yet thorough introduction to the analytic and statistical methods that are useful in studying sports. It explains how to apply the methods to sports data and interpret the results, demonstrating that the analysis of sports data is often different from standard statistical analyses. The book integrates a large number of motivating sports examples throughout and offers guidance on computation and suggestions for further reading in each chapter.

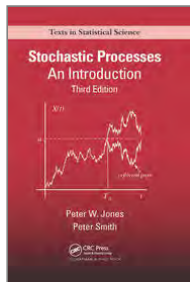
Chapman & Hall  
March 2020 : 372pp  
Pb: 978-0-367-46938-2 : **£58.99**  
Hb: 978-0-367-25207-6 : **£155**  
eBook: 978-0-367-25209-0

\* For full contents and more information, visit: [www.routledge.com/9780367469382](http://www.routledge.com/9780367469382)

3RD EDITION

## Stochastic Processes

An Introduction, Third Edition

**Peter Watts Jones , Peter Smith**

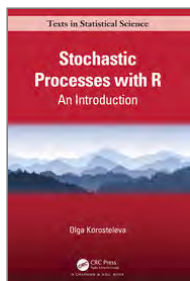
Based on a well-established and popular course taught by the authors over many years, *Stochastic Processes: An Introduction, Third Edition*, discusses the modelling and analysis of random experiments, where processes evolve over time. The text begins with a review of relevant fundamental probability. It then covers gambling problems, random walks, and Markov chains. The authors go on to discuss random processes continuous in time, including Poisson, birth and death processes, and general population models, and present an extended discussion on the analysis of associated stationary processes in queues.

Chapman & Hall  
September 2020 : 272pp  
Pb: 978-0-367-65760-4 : **£47.99**  
Hb: 978-1-498-77811-4 : **£64.99**  
eBook: 978-1-315-15657-6

\* For full contents and more information, visit: [www.routledge.com/9780367657604](http://www.routledge.com/9780367657604)

## Stochastic Processes with R

An Introduction

**Olga Korosteleva** California State University, Long Beach, USA*Series: Chapman & Hall/CRC Texts in Statistical Science*

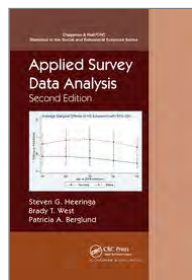
*Stochastic Processes with R: An Introduction* cuts through the heavy theory that is present in most courses on random processes and serves as practical guide to simulated trajectories and real-life applications for stochastic processes. The light yet detailed text provides a solid foundation that is an ideal companion for undergraduate statistics students looking to familiarise themselves with stochastic processes before going onto more advanced courses.

Chapman & Hall  
May 2024 : 200pp  
Pb: 978-1-032-15473-2 : **£45.99**  
Hb: 978-1-032-15373-5 : **£84.99**  
eBook: 978-1-003-24428-8

\* For full contents and more information, visit: [www.routledge.com/9781032154732](http://www.routledge.com/9781032154732)

2ND EDITION

## Applied Survey Data Analysis



**Steven G. Heeringa , Brady T. West , Patricia A. Berglund**

Highly recommended by the Journal of Official Statistics, The American Statistician, and other journals, Applied Survey Data Analysis, Second Edition provides an up-to-date overview of state-of-the-art approaches to the analysis of complex sample survey data. Building on the wealth of material on practical approaches to descriptive analysis and regression modeling from the first edition, this second edition expands the topics covered and presents more step-by-step examples of modern approaches to the analysis of survey data using the newest statistical software.

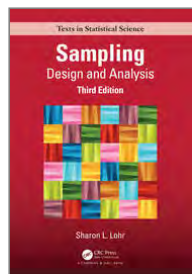
Chapman & Hall  
December 2020 : 592pp  
Pb: 978-0-367-73611-8 : **£45.99**  
Hb: 978-1-498-76160-4 : **£84.99**  
eBook: 978-1-315-15327-8

\* For full contents and more information, visit: [www.routledge.com/9780367736118](http://www.routledge.com/9780367736118)

3RD EDITION

## Sampling

Design and Analysis



**Sharon L. Lohr**

*Series: Chapman & Hall/CRC Texts in Statistical Science*

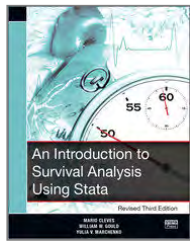
The third edition of this authoritative text has been thoroughly updated to incorporate recent advances in survey sampling, with a new chapter on nonprobability sampling and more than 200 new examples and exercises. Two new supplementary books, available for purchase or free download, show how to use R and SAS® software to select and analyze the samples discussed in the text.

Chapman & Hall  
November 2021 : 674pp  
Hb: 978-0-367-27950-9 : **£68.99**  
eBook: 978-0-429-29889-9

\* For full contents and more information, visit: [www.routledge.com/9780367279509](http://www.routledge.com/9780367279509)

4TH EDITION

## An Introduction to Survival Analysis Using Stata, Revised Third Edition



**Mario Cleves** University of Arkansas for Medical Sciences, Little Rock, USA, **William Gould** StataCorp LP, College Station, Texas, USA, **Yulia Marchenko** StataCorp LP, College Station, Texas, USA

An Introduction to Survival Analysis Using Stata, Revised Third Edition is the ideal tutorial for professional data analysts who want to learn survival analysis for the first time or who are well versed in survival analysis but are not as dexterous in using Stata to analyze survival data. This text also serves as a valuable reference to those readers who already have experience using Stata's survival analysis routines. This revised third edition has been updated for Stata 14, and it includes a new section on predictive margins and marginal effects.

Stata Press

May 2016 : 428pp

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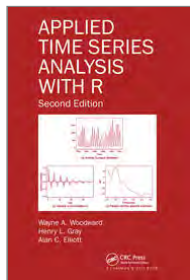
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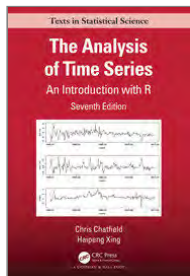
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## The Analysis of Time Series

An Introduction with R



**Chris Chatfield** University of Bath, UK (Retired), **Haipeng Xing** SUNY, Stony Brook, New York, USA

*Series: Chapman & Hall/CRC Texts in Statistical Science*

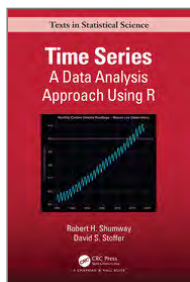
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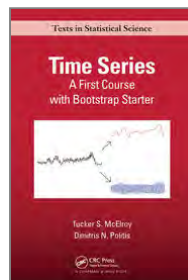
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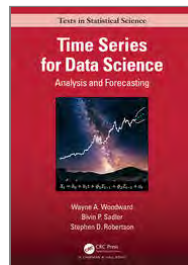
The book provides the foundation of time series methods, including linear filters and a geometric approach to prediction. The important paradigm of ARMA models is studied in-depth, as well as frequency domain methods. Entropy and other information theoretic notions are introduced, with applications to time series modeling. The second half of the book focuses on statistical inference, the fitting of time series models, as well as computational facets of forecasting. Many time series of interest are nonlinear in which case classical inference methods can fail, but bootstrap methods may come to the rescue.

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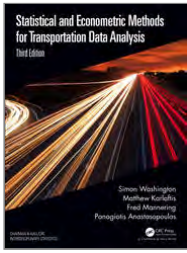
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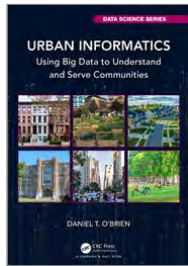
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