

Introduction To R For Quantitative Finance Puhle Michael

Originally published in 1978. This book is designed to enable students on main courses in economics to comprehend literature which employs econometric techniques as a method of analysis, to use econometric techniques themselves to test hypotheses about economic relationships and to understand some of the difficulties involved in interpreting results. While the book is mainly aimed at second-year undergraduates undertaking courses in applied economics, its scope is sufficiently wide to take in students at postgraduate level who have no background in econometrics - it integrates fully the mathematical and statistical techniques used in econometrics with micro- and macroeconomic case studies.

This book gives an introduction to R to build up graphing, simulating and computing skills to enable one to see theoretical and statistical models in economics in a unified way. The great advantage of R is that it is free, extremely flexible and extensible. The book addresses the specific needs of economists, and helps them move up the R learning curve. It covers some mathematical topics such as, graphing the Cobb-Douglas function, using R to study the Solow growth model, in addition to statistical topics, from drawing statistical graphs to doing linear and logistic regression. It uses data that can be downloaded from the internet, and which is also available in different R packages. With some treatment of basic econometrics, the book discusses quantitative economics broadly and simply, looking at models in the light of data. Students of economics or economists keen to learn how to use R would find this book very useful. Learn to trade algorithmically with your existing brokerage, from data management, to strategy optimization, to order execution, using free and publicly available data. Connect to your brokerage's API, and the source code is plug-and-play. Automated Trading with R explains automated trading, starting with its mathematics and moving to its computation and execution. You will gain a unique insight into the mechanics and computational considerations taken in building a back-tester, strategy optimizer, and fully functional trading platform. The platform built in this book can serve as a complete replacement for commercially available platforms used by retail traders and small funds. Software components are strictly decoupled and easily scalable, providing opportunity to substitute any data source, trading algorithm, or brokerage. This book will: Provide a flexible alternative to common strategy automation frameworks, like Tradestation, Metatrader, and CQG, to small funds and retail traders Offer an understanding of the internal mechanisms of an automated trading system Standardize discussion and notation of real-world strategy optimization problems What You Will Learn Understand machine-learning criteria for statistical validity in the context of time-series Optimize strategies, generate real-time trading decisions, and minimize computation time while programming an automated strategy in R and using its package library Best simulate strategy performance in its specific use case to derive accurate performance estimates Understand critical real-world variables pertaining to portfolio management and performance assessment, including latency, drawdowns, varying trade size, portfolio growth, and penalization of unused capital Who This Book Is For Traders/practitioners at the retail or small fund level with at least an undergraduate background in finance or computer science; graduate level finance or data science

students

This book provides a contemporary treatment of quantitative economics, with a focus on data science. The book introduces the reader to R and RStudio, and uses expert Hadley Wickham's tidyverse package for different parts of the data analysis workflow. After a gentle introduction to R code, the reader's R skills are gradually honed, with the help of "your turn" exercises. At the heart of data science is data, and the book equips the reader to import and wrangle data, (including network data). Very early on, the reader will begin using the popular ggplot2 package for visualizing data, even making basic maps. The use of R in understanding functions, simulating difference equations, and carrying out matrix operations is also covered. The book uses Monte Carlo simulation to understand probability and statistical inference, and the bootstrap is introduced. Causal inference is illuminated using simulation, data graphs, and R code for applications with real economic examples, covering experiments, matching, regression discontinuity, difference-in-difference, and instrumental variables. The interplay of growth related data and models is presented, before the book introduces the reader to time series data analysis with graphs, simulation, and examples. Lastly, two computationally intensive methods—generalized additive models and random forests (an important and versatile machine learning method)—are introduced intuitively with applications. The book will be of great interest to economists—students, teachers, and researchers alike—who want to learn R. It will help economics students gain an intuitive appreciation of applied economics and enjoy engaging with the material actively, while also equipping them with key data science skills.

This textbook examines empirical linguistics from a theoretical linguist's perspective. It provides both a theoretical discussion of what quantitative corpus linguistics entails and detailed, hands-on, step-by-step instructions to implement the techniques in the field. The statistical methodology and R-based coding from this book teach readers the basic and then more advanced skills to work with large data sets in their linguistics research and studies. Massive data sets are now more than ever the basis for work that ranges from usage-based linguistics to the far reaches of applied linguistics. This book presents much of the methodology in a corpus-based approach. However, the corpus-based methods in this book are also essential components of recent developments in sociolinguistics, historical linguistics, computational linguistics, and psycholinguistics. Material from the book will also be appealing to researchers in digital humanities and the many non-linguistic fields that use textual data analysis and text-based sensorimetrics. Chapters cover topics including corpus processing, frequencing data, and clustering methods. Case studies illustrate each chapter with accompanying data sets, R code, and exercises for use by readers. This book may be used in advanced undergraduate courses, graduate courses, and self-study.

The first step-by-step guide to the quantitative analysis of archaeological data using the R statistical computing system.

This book is a textbook on R, a programming language and environment for statistical analysis and visualization. Its primary aim is to introduce R as a research instrument in quantitative Interactional Linguistics. Focusing on visualization in R, the book presents original case studies on conversational talk-in-interaction based on corpus data and explains in good detail how key graphs in the case studies were programmed in R. It also includes task sections to enable readers to conduct their own research and

compute their own visualizations in R. Both the code underlying the key graphs in the case studies and the datasets used in the case studies as well as in the task sections are made available on the book's companion website.

A straightforward introduction to a wide range of statistical methods for field biologists, using thoroughly explained R code.

This is a textbook for introductory courses in quantitative research methods across the social sciences. It offers a detailed explanation of introductory statistical techniques and presents an overview of the contexts in which they should be applied.

Quantitative Finance with R offers a winning strategy for devising expertly-crafted and workable trading models using the R open source programming language, providing readers with a step-by-step approach to understanding complex quantitative finance problems and building functional computer code.

R is rapidly becoming the standard software for statistical analyses, graphical presentation of data, and programming in the natural, physical, social, and engineering sciences. Getting Started with R is now the go-to introductory guide for biologists wanting to learn how to use R in their research. It teaches readers how to import, explore, graph, and analyse data, while keeping them focused on their ultimate goals: clearly communicating their data in oral presentations, posters, papers, and reports. It provides a consistent workflow for using R that is simple, efficient, reliable, and reproducible. This second edition has been updated and expanded while retaining the concise and engaging nature of its predecessor, offering an accessible and fun introduction to the packages dplyr and ggplot2 for data manipulation and graphing. It expands the set of basic statistics considered in the first edition to include new examples of a simple regression, a one-way and a two-way ANOVA. Finally, it introduces a new chapter on the generalised linear model. Getting Started with R is suitable for undergraduates, graduate students, professional researchers, and practitioners in the biological sciences.

Now in its second edition, Text Analysis with R provides a practical introduction to computational text analysis using the open source programming language R. R is an extremely popular programming language, used throughout the sciences; due to its accessibility, R is now used increasingly in other research areas. In this volume, readers immediately begin working with text, and each chapter examines a new technique or process, allowing readers to obtain a broad exposure to core R procedures and a fundamental understanding of the possibilities of computational text analysis at both the micro and the macro scale. Each chapter builds on its predecessor as readers move from small scale "microanalysis" of single texts to large scale "macroanalysis" of text corpora, and each concludes with a set of practice exercises that reinforce and expand upon the chapter lessons. The book's focus is on making the technical palatable and making the technical useful and immediately gratifying. Text Analysis with R is written with students and scholars of literature in mind but will be applicable to other

humanists and social scientists wishing to extend their methodological toolkit to include quantitative and computational approaches to the study of text. Computation provides access to information in text that readers simply cannot gather using traditional qualitative methods of close reading and human synthesis. This new edition features two new chapters: one that introduces `dplyr` and `tidyr` in the context of parsing and analyzing dramatic texts to extract speaker and receiver data, and one on sentiment analysis using the `syuzhet` package. It is also filled with updated material in every chapter to integrate new developments in the field, current practices in R style, and the use of more efficient algorithms. Many statements made by historians are quantitative statements, involving the use of measurable historical evidence. The historian who uses quantitative methods to analyse and interpret such information needs to be well acquainted with the particular methods and techniques of analysis and to be able to make the best use of the data that are available. There is an increasing need for training in such methods and in the interpretation of the large volume of literature now using quantitative techniques. Dr Floud's text, which is relevant to all branches of historical inquiry, provides a straightforward and intelligible introduction for all students and research workers. The simpler and more useful techniques of descriptive and analytical statistics are described, up to the level of simple linear regression. Historical examples are used throughout, and great attention is paid to the need to ensure that the techniques are consistent with the quality of the data and with the historical problems they are intended to solve. Attention is paid to problems of the analysis of time series, which are of particular use to historians. No previous knowledge of statistics is assumed, and the simple mathematical techniques that are used are fully and clearly explained, without the use of more mathematical knowledge than is provided by an O-level course. A bibliography is provided to guide historians towards the most useful further reading. This student friendly text was first published in 1973.

An introduction to many mathematical topics applicable to quantitative finance that teaches how to "think in mathematics" rather than simply do mathematics by rote. This text offers an accessible yet rigorous development of many of the fields of mathematics necessary for success in investment and quantitative finance, covering topics applicable to portfolio theory, investment banking, option pricing, investment, and insurance risk management. The approach emphasizes the mathematical framework provided by each mathematical discipline, and the application of each framework to the solution of finance problems. It emphasizes the thought process and mathematical approach taken to develop each result instead of the memorization of formulas to be applied (or misapplied) automatically. The objective is to provide a deep level of understanding of the relevant mathematical theory and tools that can then be effectively used in practice, to teach students how to "think in mathematics" rather than simply to do mathematics by rote. Each chapter covers an area of mathematics such as mathematical logic, Euclidean and other spaces, set theory and topology,

sequences and series, probability theory, and calculus, in each case presenting only material that is most important and relevant for quantitative finance. Each chapter includes finance applications that demonstrate the relevance of the material presented. Problem sets are offered on both the mathematical theory and the finance applications sections of each chapter. The logical organization of the book and the judicious selection of topics make the text customizable for a number of courses. The development is self-contained and carefully explained to support disciplined independent study as well. A solutions manual for students provides solutions to the book's Practice Exercises; an instructor's manual offers solutions to the Assignment Exercises as well as other materials.

Introduction to R for Social Scientists: A Tidy Programming Approach introduces the Tidy approach to programming in R for social science research to help quantitative researchers develop a modern technical toolbox. The Tidy approach is built around consistent syntax, common grammar, and stacked code, which contribute to clear, efficient programming. The authors include hundreds of lines of code to demonstrate a suite of techniques for developing and debugging an efficient social science research workflow. To deepen the dedication to teaching Tidy best practices for conducting social science research in R, the authors include numerous examples using real world data including the American National Election Study and the World Indicators Data. While no prior experience in R is assumed, readers are expected to be acquainted with common social science research designs and terminology. Whether used as a reference manual or read from cover to cover, readers will be equipped with a deeper understanding of R and the Tidyverse, as well as a framework for how best to leverage these powerful tools to write tidy, efficient code for solving problems. To this end, the authors provide many suggestions for additional readings and tools to build on the concepts covered. They use all covered techniques in their own work as scholars and practitioners.

Implement machine learning, time-series analysis, algorithmic trading and more About This Book Understand the basics of R and how they can be applied in various Quantitative Finance scenarios Learn various algorithmic trading techniques and ways to optimize them using the tools available in R. Contain different methods to manage risk and explore trading using Machine Learning. Who This Book Is For If you want to learn how to use R to build quantitative finance models with ease, this book is for you. Analysts who want to learn R to solve their quantitative finance problems will also find this book useful. Some understanding of the basic financial concepts will be useful, though prior knowledge of R is not required. What You Will Learn Get to know the basics of R and how to use it in the field of Quantitative Finance Understand data processing and model building using R Explore different types of analytical techniques such as statistical analysis, time-series analysis, predictive modeling, and econometric analysis Build and analyze quantitative finance models using real-world examples How real-life examples should be used to develop strategies

Performance metrics to look into before deciding upon any model Deep dive into the vast world of machine-learning based trading Get to grips with algorithmic trading and different ways of optimizing it Learn about controlling risk parameters of financial instruments In Detail The role of a quantitative analyst is very challenging, yet lucrative, so there is a lot of competition for the role in top-tier organizations and investment banks. This book is your go-to resource if you want to equip yourself with the skills required to tackle any real-world problem in quantitative finance using the popular R programming language. You'll start by getting an understanding of the basics of R and its relevance in the field of quantitative finance. Once you've built this foundation, we'll dive into the practicalities of building financial models in R. This will help you have a fair understanding of the topics as well as their implementation, as the authors have presented some use cases along with examples that are easy to understand and correlate. We'll also look at risk management and optimization techniques for algorithmic trading. Finally, the book will explain some advanced concepts, such as trading using machine learning, optimizations, exotic options, and hedging. By the end of this book, you will have a firm grasp of the techniques required to implement basic quantitative finance models in R. Style and approach This book introduces you to the essentials of quantitative finance with the help of easy-to-understand, practical examples and use cases in R. Each chapter presents a specific financial concept in detail, backed with relevant theory and the implementation of a real-life example.

An Introduction to R for Quantitative Economics Graphing, Simulating and Computing Springer

Using R for Modelling and Quantitative Methods in Fisheries has evolved and been adapted from an earlier book by the same author and provides a detailed introduction to analytical methods commonly used by fishery scientists, ecologists, and advanced students using the open-source software R as a programming tool. Some knowledge of R is assumed, as this is a book about using R, but an introduction to the development and working of functions, and how one can explore the contents of R functions and packages, is provided. The example analyses proceed step-by-step using code listed in the book and from the book's companion R package, MQMF, available from GitHub and the standard archive, CRAN. The examples are designed to be simple to modify so the reader can quickly adapt the methods described to use with their own data. A primary aim of the book is to be a useful resource to natural resource practitioners and students. Featured Chapters: Model Parameter Estimation provides a detailed explanation of the requirements and steps involved in fitting models to data, using R and, mainly, maximum likelihood methods. On Uncertainty uses R to implement bootstrapping, likelihood profiles, asymptotic errors, and Bayesian posteriors to characterize any uncertainty in an analysis. The use of the Monte Carlo Markov Chain methodology is examined in some detail. Surplus Production Models applies all the methods examined in the earlier

parts of the book to conducting a stock assessment. This included fitting alternative models to the available data, characterizing the uncertainty in different ways, and projecting the optimum models forward in time as the basis for providing useful management advice.

A practical guide to using modern software effectively in quantitative research in the social and natural sciences. This book offers a practical guide to the computational methods at the heart of most modern quantitative research. It will be essential reading for research assistants needing hands-on experience; students entering PhD programs in business, economics, and other social or natural sciences; and those seeking quantitative jobs in industry. No background in computer science is assumed; a learner need only have a computer with access to the Internet. Using the example as its principal pedagogical device, the book offers tried-and-true prototypes that illustrate many important computational tasks required in quantitative research. The best way to use the book is to read it at the computer keyboard and learn by doing. The book begins by introducing basic skills: how to use the operating system, how to organize data, and how to complete simple programming tasks. For its demonstrations, the book uses a UNIX-based operating system and a set of free software tools: the scripting language Python for programming tasks; the database management system SQLite; and the freely available R for statistical computing and graphics. The book goes on to describe particular tasks: analyzing data, implementing commonly used numerical and simulation methods, and creating extensions to Python to reduce cycle time. Finally, the book describes the use of LaTeX, a document markup language and preparation system.

R is a free, open source programming language that's become a popular standard for financial and economic analysis. Quantitative Investment Portfolio Analytics In R is your guide to getting started with modeling portfolio risk and return in R. Even if you have no experience with the software, you'll be fluent in R at a basic level after reading this short primer. The chapters provide step-by-step instructions for tapping into R's powerful capabilities for portfolio analytics.

A practical source for performing essential statistical analyses and data management tasks in R Univariate, Bivariate, and Multivariate Statistics Using R offers a practical and very user-friendly introduction to the use of R software that covers a range of statistical methods featured in data analysis and data science. The author—a noted expert in quantitative teaching—has written a quick go-to reference for performing essential statistical analyses and data management tasks in R. Requiring only minimal prior knowledge, the book introduces concepts needed for an immediate yet clear understanding of statistical concepts essential to interpreting software output. The author explores univariate, bivariate, and multivariate statistical methods, as well as select nonparametric tests. Altogether a hands-on manual on the applied statistics and essential R computing capabilities needed to write theses, dissertations, as well as research publications. The book is comprehensive in its coverage of univariate through to

multivariate procedures, while serving as a friendly and gentle introduction to R software for the newcomer. This important resource: Offers an introductory, concise guide to the computational tools that are useful for making sense out of data using R statistical software Provides a resource for students and professionals in the social, behavioral, and natural sciences Puts the emphasis on the computational tools used in the discovery of empirical patterns Features a variety of popular statistical analyses and data management tasks that can be immediately and quickly applied as needed to research projects Shows how to apply statistical analysis using R to data sets in order to get started quickly performing essential tasks in data analysis and data science Written for students, professionals, and researchers primarily in the social, behavioral, and natural sciences, Univariate, Bivariate, and Multivariate Statistics Using R offers an easy-to-use guide for performing data analysis fast, with an emphasis on drawing conclusions from empirical observations. The book can also serve as a primary or secondary textbook for courses in data analysis or data science, or others in which quantitative methods are featured.

A complete set of statistical tools for beginning financial analysts from a leading authority Written by one of the leading experts on the topic, An Introduction to Analysis of Financial Data with R explores basic concepts of visualization of financial data. Through a fundamental balance between theory and applications, the book supplies readers with an accessible approach to financial econometric models and their applications to real-world empirical research. The author supplies a hands-on introduction to the analysis of financial data using the freely available R software package and case studies to illustrate actual implementations of the discussed methods. The book begins with the basics of financial data, discussing their summary statistics and related visualization methods. Subsequent chapters explore basic time series analysis and simple econometric models for business, finance, and economics as well as related topics including: Linear time series analysis, with coverage of exponential smoothing for forecasting and methods for model comparison Different approaches to calculating asset volatility and various volatility models High-frequency financial data and simple models for price changes, trading intensity, and realized volatility Quantitative methods for risk management, including value at risk and conditional value at risk Econometric and statistical methods for risk assessment based on extreme value theory and quantile regression Throughout the book, the visual nature of the topic is showcased through graphical representations in R, and two detailed case studies demonstrate the relevance of statistics in finance. A related website features additional data sets and R scripts so readers can create their own simulations and test their comprehension of the presented techniques. An Introduction to Analysis of Financial Data with R is an excellent book for introductory courses on time series and business statistics at the upper-undergraduate and graduate level. The book is also an excellent resource for researchers and practitioners in the fields of business, finance, and

economics who would like to enhance their understanding of financial data and today's financial markets.

The book provides a complete explanation of R programming in quantitative finance. It demonstrates how to prototype quant models and backtest trading strategies. It pays special attention to creating business applications and reusable R libraries that can be directly used to solve real-world problems in quantitative finance.

This textbook offers an essential introduction to survey research and quantitative methods. Building on the premise that statistical methods need to be learned in a practical fashion, the book guides students through the various steps of the survey research process and helps to apply those steps toward a real example. In detail, the textbook introduces students to the four pillars of survey research and quantitative analysis: (1) the importance of survey research, (2) preparing a survey, (3) conducting a survey and (4) analyzing a survey. Students are shown how to create their own questionnaire based on some theoretically derived hypotheses to achieve empirical findings for a solid dataset. Lastly, they use said data to test their hypotheses in a bivariate and multivariate realm. The book explains the theory, rationale and mathematical foundations of these tests. In addition, it provides clear instructions on how to conduct the tests in SPSS and Stata. Given the breadth of its coverage, the textbook is suitable for introductory statistics, survey research or quantitative methods classes in the social sciences. Ecological research is becoming increasingly quantitative, yet students often opt out of courses in mathematics and statistics, unwittingly limiting their ability to carry out research in the future. This textbook provides a practical introduction to quantitative ecology for students and practitioners who have realised that they need this opportunity. The text is addressed to readers who haven't used mathematics since school, who were perhaps more confused than enlightened by their undergraduate lectures in statistics and who have never used a computer for much more than word processing and data entry. From this starting point, it slowly but surely instils an understanding of mathematics, statistics and programming, sufficient for initiating research in ecology. The book's practical value is enhanced by extensive use of biological examples and the computer language R for graphics, programming and data analysis. Key Features: Provides a complete introduction to mathematics statistics and computing for ecologists. Presents a wealth of ecological examples demonstrating the applied relevance of abstract mathematical concepts, showing how a little technique can go a long way in answering interesting ecological questions. Covers elementary topics, including the rules of algebra, logarithms, geometry, calculus, descriptive statistics, probability, hypothesis testing and linear regression. Explores more advanced topics including fractals, non-linear dynamical systems, likelihood and Bayesian estimation, generalised linear, mixed and additive models, and multivariate statistics. R boxes provide step-by-step recipes for implementing the graphical and numerical techniques outlined in each section. How to be a

Quantitative Ecologist provides a comprehensive introduction to mathematics, statistics and computing and is the ideal textbook for late undergraduate and postgraduate courses in environmental biology. "With a book like this, there is no excuse for people to be afraid of maths, and to be ignorant of what it can do." —Professor Tim Benton, Faculty of Biological Sciences, University of Leeds, UK

"What are the most effective methods to code and analyze data for a particular study? This thoughtful and engaging book reviews the selection criteria for coding and analyzing any set of data--whether qualitative, quantitative, mixed, or visual. The authors systematically explain when to use verbal, numerical, graphic, or combined codes, and when to use qualitative, quantitative, graphic, or mixed-methods modes of analysis. Chapters on each topic are organized so that researchers can read them sequentially or can easily "flip and find" answers to specific questions. Nontechnical discussions of cutting-edge approaches--illustrated with real-world examples--emphasize how to choose (rather than how to implement) the various analyses. The book shows how using the right analysis methods leads to more justifiable conclusions and more persuasive presentations of research results. Useful features for teaching or self-study: *Chapter-opening preview boxes that highlight useful topics addressed. *End-of-chapter summary tables recapping the 'dos and don'ts' and advantages and disadvantages of each analytic technique. *Annotated suggestions for further reading and technical resources on each topic. Subject Areas/Keywords: analyses, coding, combined methods, data analysis, data collection, dissertation, graphical, interpretation, mixed methods, qualitative, quantitative, research analysis, research designs, research methods, social sciences, thesis, visual Audience: Researchers, instructors, and graduate students in a range of disciplines, including psychology, education, social work, sociology, health, and management; administrators and managers who need to make data-driven decisions"--

Environmental science (ecology, conservation, and resource management) is an increasingly quantitative field. A well-trained ecologist now needs to evaluate evidence generated from complex quantitative methods, and to apply these methods in their own research. Yet the existing books and academic coursework are not adequately serving most of the potential audience - instead they cater to the specialists who wish to focus on either mathematical or statistical aspects, and overwhelmingly appeal to those who already have confidence in their quantitative skills. At the same time, many texts lack an explicit emphasis on the epistemology of quantitative techniques. That is, how do we gain understanding about the real world from models that are so vastly simplified? This accessible textbook introduces quantitative ecology in a manner that aims to confront these limitations and thereby appeal to a far wider audience. It presents material in an informal, approachable, and encouraging manner that welcomes readers with any degree of confidence and prior training. It covers foundational topics in both mathematical and statistical ecology before describing how to implement these

concepts to choose, use, and analyse models, providing guidance and worked examples in both spreadsheet format and R. The emphasis throughout is on the skilful interpretation of models to answer questions about the natural world.

Introduction to Quantitative Ecology is suitable for advanced undergraduate students and incoming graduate students, seeking to strengthen their understanding of quantitative methods and to apply them successfully to real world ecology, conservation, and resource management scenarios.

This original textbook provides a comprehensive and integrated approach to using quantitative methods in the social sciences. Thomas R Black guides the student and researcher through the minefield of potential problems that may be confronted, and it is this emphasis on the practical that distinguishes his book from others which focus exclusively on either research design and measurement or statistical methods. Focusing on the design and execution of research, key topics such as planning, sampling, the design of measuring instruments, choice of statistical test and interpretation of results are examined within the context of the research process. In a lively and accessible style, the student is introduced to research design issues alongside statistical procedures and encouraged to develop analytical and decision-making skills.

This book is intended for those who want to learn how to use R's capabilities to build models in quantitative finance at a more advanced level. If you wish to perfectly take up the rhythm of the chapters, you need to be at an intermediate level in quantitative finance and you also need to have a reasonable knowledge of R.

"One of the few books that provide an accessible introduction to quantitative data analysis with R. A particular strength of the text is the focus on 'real world' examples which help students to understand why they are learning these methods." - Dr Roxanne Connelly, University of York Relevant, engaging, and packed with student-focused learning features, this book provides the step-by-step introduction to quantitative research and data every student needs.

Gradually introducing applied statistics and R, it uses examples from across the social sciences to show you how to apply abstract statistical and methodological principles to your own work. At a student-friendly pace, it enables you to: - Understand and use quantitative data to answer questions - Approach surrounding ethical issues - Collect quantitative data - Manage, write about, and share the data effectively Supported by incredible digital resources with online tutorials, videos, datasets, and multiple choice questions, this book gives you not only the tools you need to understand statistics, quantitative data, and R software, but also the chance to practice and apply what you have learned. Brian J. Fogarty is a Lecturer in Quantitative Social Science on the Glasgow Q-Step Programme in the School of Social and Political Sciences at the University of Glasgow.

"Princeton University Press published Imai's textbook, Quantitative Social Science: An Introduction, an introduction to quantitative methods and data

science for upper level undergrads and graduates in professional programs, in February 2017. What is distinct about the book is how it leads students through a series of applied examples of statistical methods, drawing on real examples from social science research. The original book was prepared with the statistical software R, which is freely available online and has gained in popularity in recent years. But many existing courses in statistics and data sciences, particularly in some subject areas like sociology and law, use STATA, another general purpose package that has been the market leader since the 1980s. We've had several requests for STATA versions of the text as many programs use it by default. This is a "translation" of the original text, keeping all the current pedagogical text but inserting the necessary code and outputs from STATA in their place"--

Relevant, engaging, and packed with student-focused learning features, this book provides the basic step-by-step introduction to quantitative research and data every student needs. Gradually introducing applied statistics and the language and functionality of R and R Studio software, it uses examples from across the social sciences to show students how to apply abstract statistical and methodological principles to their own work. Maintaining a student-friendly pace, it goes beyond a normal introductory statistics book and shows students where data originates and how to: - Understand and use quantitative data to answer questions - Approach surrounding ethical issues - Collect quantitative data - Manage, write about, and share the data effectively Supported by incredible digital resources with online tutorials, videos, datasets, and multiple choice questions, this book gives students not only the tools they need to understand statistics, quantitative data, and R software, but also the chance to practice and apply what they have learned.

Computational Genomics with R provides a starting point for beginners in genomic data analysis and also guides more advanced practitioners to sophisticated data analysis techniques in genomics. The book covers topics from R programming, to machine learning and statistics, to the latest genomic data analysis techniques. The text provides accessible information and explanations, always with the genomics context in the background. This also contains practical and well-documented examples in R so readers can analyze their data by simply reusing the code presented. As the field of computational genomics is interdisciplinary, it requires different starting points for people with different backgrounds. For example, a biologist might skip sections on basic genome biology and start with R programming, whereas a computer scientist might want to start with genome biology. After reading: You will have the basics of R and be able to dive right into specialized uses of R for computational genomics such as using Bioconductor packages. You will be familiar with statistics, supervised and unsupervised learning techniques that are important in data modeling, and exploratory analysis of high-dimensional data. You will understand genomic intervals and operations on them that are used for tasks such as aligned read counting and genomic feature annotation. You will know the basics of processing and quality checking high-throughput sequencing data. You will be able to do sequence analysis, such as calculating GC content for parts of a genome or finding transcription factor binding

sites. You will know about visualization techniques used in genomics, such as heatmaps, meta-gene plots, and genomic track visualization. You will be familiar with analysis of different high-throughput sequencing data sets, such as RNA-seq, ChIP-seq, and BS-seq. You will know basic techniques for integrating and interpreting multi-omics datasets. Altuna Akalin is a group leader and head of the Bioinformatics and Omics Data Science Platform at the Berlin Institute of Medical Systems Biology, Max Delbrück Center, Berlin. He has been developing computational methods for analyzing and integrating large-scale genomics data sets since 2002. He has published an extensive body of work in this area. The framework for this book grew out of the yearly computational genomics courses he has been organizing and teaching since 2015. This book is a tutorial guide for new users that aims to help you understand the basics of and become accomplished with the use of R for quantitative finance. If you are looking to use R to solve problems in quantitative finance, then this book is for you. A basic knowledge of financial theory is assumed, but familiarity with R is not required. With a focus on using R to solve a wide range of issues, this book provides useful content for both the R beginner and more experience users.

Neurofeedback techniques are used as treatment for a variety of psychological disorders including attention deficit disorder, dissociative identity disorder, depression, drug and alcohol abuse, and brain injury. Resources for understanding what the technique is, how it is used, and to what disorders and patients it can be applied are scarce. An ideal tool for practicing clinicians and clinical psychologists in independent practice and hospital settings, this book provides an introduction to neurofeedback/neurotherapy techniques. Details advantages of quantitative EEG over other systems like PET and SPECT Gives details of QEEG procedures and typical measures Describes QEEG databases available for reference Recommends protocols for specific disorders/patient populations

A thumb print left at the scene of a grisly murder. Fingerprints taken from a getaway car used in a bank robbery. A palm print recovered from the shattered glass door of a burglarized home. Indeed, where crimes are committed, careless perpetrators will invariably leave behind the critical pieces of evidence—most likely in the form of fingerprints—needed to catch and convict them. But the science of fingerprint identification isn't always as cut and dry as detective novels and movies make it out to be. Quantitative-Qualitative Friction Ridge Analysis, a new book in the ongoing Practical Aspects of Criminal and Forensic Investigations series, examines the latest methods and techniques in the science of friction ridge identification, or ridgeology. David R. Ashbaugh examines every facet of the discipline, from the history of friction ridge identification and its earliest pioneers and researchers, to the scientific basis and the various steps of the identification process. The structure and growth of friction skin and how it can leave latent or visible prints are examined, as well as advanced identification methods in ridgeology, including Poroscopy, Edgeoscopy, Pressure Distortion and Complex or Problem Print Analysis. The book, which features several detailed illustrations and photographs, also includes a new method for Palmar Flexion Crease Identification (palm lines) designed by the author and which has helped solve several criminal cases where fingerprints were not available. For crime scene technicians, forensic identification specialists, or anyone else pursuing a career in forensic science, this book is arguably the definitive source in the science of friction

ridge identification.

The first textbook of its kind, *Quantitative Corpus Linguistics with R* demonstrates how to use the open source programming language R for corpus linguistic analyses. Computational and corpus linguists doing corpus work will find that R provides an enormous range of functions that currently require several programs to achieve – searching and processing corpora, arranging and outputting the results of corpus searches, statistical evaluation, and graphing.

The Foundational Hands-On Skills You Need to Dive into Data Science “Freeman and Ross have created the definitive resource for new and aspiring data scientists to learn foundational programming skills.” –From the foreword by Jared Lander, series editor

Using data science techniques, you can transform raw data into actionable insights for domains ranging from urban planning to precision medicine. *Programming Skills for Data Science* brings together all the foundational skills you need to get started, even if you have no programming or data science experience. Leading instructors Michael Freeman and Joel Ross guide you through installing and configuring the tools you need to solve professional-level data science problems, including the widely used R language and Git version-control system. They explain how to wrangle your data into a form where it can be easily used, analyzed, and visualized so others can see the patterns you’ve uncovered. Step by step, you’ll master powerful R programming techniques and troubleshooting skills for probing data in new ways, and at larger scales. Freeman and Ross teach through practical examples and exercises that can be combined into complete data science projects. Everything’s focused on real-world application, so you can quickly start analyzing your own data and getting answers you can act upon. Learn to Install your complete data science environment, including R and RStudio Manage projects efficiently, from version tracking to documentation Host, manage, and collaborate on data science projects with GitHub Master R language fundamentals: syntax, programming concepts, and data structures Load, format, explore, and restructure data for successful analysis Interact with databases and web APIs Master key principles for visualizing data accurately and intuitively Produce engaging, interactive visualizations with ggplot and other R packages Transform analyses into sharable documents and sites with R Markdown Create interactive web data science applications with Shiny Collaborate smoothly as part of a data science team Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Teach Your Students How to Become Successful Working Quants *Quantitative Finance: A Simulation-Based Introduction Using Excel* provides an introduction to financial mathematics for students in applied mathematics, financial engineering, actuarial science, and business administration. The text not only enables students to practice with the basic techniques of financial mathematics, but it also helps them gain significant intuition about what the techniques mean, how they work, and what happens when they stop working. After introducing risk, return, decision making under uncertainty, and traditional discounted cash flow project analysis, the book covers mortgages, bonds, and annuities using a blend of Excel simulation and difference equation or algebraic formalism. It then looks at how interest rate markets work and how to model bond prices before addressing mean variance portfolio optimization, the capital asset pricing model, options, and value at risk (VaR). The author next focuses

on binomial model tools for pricing options and the analysis of discrete random walks. He also introduces stochastic calculus in a nonrigorous way and explains how to simulate geometric Brownian motion. The text proceeds to thoroughly discuss options pricing, mostly in continuous time. It concludes with chapters on stochastic models of the yield curve and incomplete markets using simple discrete models. Accessible to students with a relatively modest level of mathematical background, this book will guide your students in becoming successful quants. It uses both hand calculations and Excel spreadsheets to analyze plenty of examples from simple bond portfolios. The spreadsheets are available on the book's CRC Press web page.

Design Research uses scientific methods to evaluate designs and build design theories. This book starts with recognizable questions in Design Research, such as A/B testing, how users learn to operate a device and why computer-generated faces are eerie. Using a broad range of examples, efficient research designs are presented together with statistical models and many visualizations. With the tidy R approach, producing publication-ready statistical reports is straight-forward and even non-programmers can learn this in just one day. Hundreds of illustrations, tables, simulations and models are presented with full R code and data included. Using Bayesian linear models, multi-level models and generalized linear models, an extensive statistical framework is introduced, covering a huge variety of research situations and yet, building on only a handful of basic concepts. Unique solutions to recurring problems are presented, such as psychometric multi-level models, beta regression for rating scales and ExGaussian regression for response times. A 'think-first' approach is promoted for model building, as much as the quantitative interpretation of results, stimulating readers to think about data generating processes, as well as rational decision making. *New Statistics for Design Researchers: A Bayesian Workflow in Tidy R* targets scientists, industrial researchers and students in a range of disciplines, such as Human Factors, Applied Psychology, Communication Science, Industrial Design, Computer Science and Social Robotics. Statistical concepts are introduced in a problem-oriented way and with minimal formalism. Included primers on R and Bayesian statistics provide entry point for all backgrounds. A dedicated chapter on model criticism and comparison is a valuable addition for the seasoned scientist.

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