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Master the programming skills you need to turn raw, unfiltered data into deep insights and get ready for a data science and analytics career with this definitive guide to R Programming for Beginners! Do you want to get started learning how to program, but don't know where to begin? Are you interested in moving beyond Excel sheets and learning one of the most powerful programming language used in cutting edge research such as machine learning? If you answered yes to any of these questions, then this book might just be what

you need. R can be a royal pain in the neck sometimes. Even seasoned programmers and data analysts still struggle with it. But it doesn't have to be you. In this guide, you're going to learn everything you need to do heavy data wrangling in R, with graded exercises and examples at the end to help you reinforce what you've learned. Here's a preview of what you're going to discover in R Programming for Beginners Step-by-step instructions to help you set up and install the R Environment with photos How to properly Execute R Scripts with your favorite code editor Everything you need to know about the R syntax-state-

ments, blocks, comments, and keywords Steps to help you write your very first R script and begin your programming journey The 6 data types supported by the R programming language How to name variables and assign values to them Steps to help you write well-defined user functions effectively How to control program flow with decision making control structures and loops How to visualize data with R programming ...and lots more! Whether you're completely new to programming and have never written a single line of code before, or you're an intermediate or experienced R programmer look-

ing to brush up on the basics, this book has everything you need to master R completely. Scroll to the top of the page and click the "Add to Cart" button to get started today!

R is a language and environment for data analysis and graphics. It may be considered an implementation of S, an award-winning language initially developed at Bell Laboratories since the late 1970s. The R project was initiated by Robert Gentleman and Ross Ihaka at the University of Auckland, New Zealand, in the early 1990s, and has been developed by an international team since mid-1997. Historically, econometricians have favored other computing environments, some of which have fallen by the wayside, and also a variety of packages with canned routines. We believe that R has great potential in econometrics, both for research and for teaching. There are at least three reasons for this: (1) R is mostly platform independent and runs on Microsoft Windows, the Mac family of operating systems, and various flavors of Unix/Linux, and also on some more exotic platforms. (2) R is free software that can be downloaded and installed at no cost from a

family of mirror sites around the globe, the Comprehensive R Archive Network (CRAN); hence students can easily install it on their own machines.

(3) R is open-source software, so that the full source code is available and can be inspected to understand what it really does, learn from it, and modify and extend it. We also like to think that platform independence and the open-source philosophy make R an ideal environment for reproducible econometric research.

R is the world's most popular language for developing statistical software: Archaeologists use it to track the spread of ancient civilizations, drug companies use it to discover which medications are safe and effective, and actuaries use it to assess financial risks and keep economies running smoothly. The Art of R Programming takes you on a guided tour of software development with R, from basic types and data structures to advanced topics like closures, recursion, and anonymous functions. No statistical knowledge is required, and your programming skills can range from hobbyist to pro. Along the way, you'll learn about functional and object-oriented program-

ming, running mathematical simulations, and rearranging complex data into simpler, more useful formats. You'll also learn to:

- Create artful graphs to visualize complex data sets and functions
- Write more efficient code using parallel R and vectorization
- Interface R with C/C++ and Python for increased speed or functionality
- Find new R packages for text analysis, image manipulation, and more
- Squash annoying bugs with advanced debugging techniques

Whether you're designing aircraft, forecasting the weather, or you just need to tame your data, The Art of R Programming is your guide to harnessing the power of statistical computing.

The Book of R is a comprehensive, beginner-friendly guide to R, the world's most popular programming language for statistical analysis. Even if you have no programming experience and little more than a grounding in the basics of mathematics, you'll find everything you need to begin using R effectively for statistical analysis. You'll start with the basics, like how to handle data and write simple programs, before moving on to more advanced topics, like producing statistical summaries of your da-

ta and performing statistical tests and modeling. You'll even learn how to create impressive data visualizations with R's basic graphics tools and contributed packages, like `ggplot2` and `ggvis`, as well as interactive 3D visualizations using the `rgl` package. Dozens of hands-on exercises (with downloadable solutions) take you from theory to practice, as you learn:

- The fundamentals of programming in R, including how to write data frames, create functions, and use variables, statements, and loops
- Statistical concepts like exploratory data analysis, probabilities, hypothesis tests, and regression modeling, and how to execute them in R
- How to access R's thousands of functions, libraries, and data sets
- How to draw valid and useful conclusions from your data
- How to create publication-quality graphics of your results

Combining detailed explanations with real-world examples and exercises, this book will provide you with a solid understanding of both statistics and the depth of R's functionality. Make *The Book of R* your doorway into the growing world of data analysis.

Partial least squares structural equation modeling

(PLS-SEM) has become a standard approach for analyzing complex inter-relationships between observed and latent variables. Researchers appreciate the many advantages of PLS-SEM such as the possibility to estimate very complex models and the method's flexibility in terms of data requirements and measurement specification. This practical open access guide provides a step-by-step treatment of the major choices in analyzing PLS path models using R, a free software environment for statistical computing, which runs on Windows, macOS, and UNIX computer platforms. Adopting the R software's `SEMinR` package, which brings a friendly syntax to creating and estimating structural equation models, each chapter offers a concise overview of relevant topics and metrics, followed by an in-depth description of a case study. Simple instructions give readers the "how-tos" of using `SEMinR` to obtain solutions and document their results. Rules of thumb in every chapter provide guidance on best practices in the application and interpretation of PLS-SEM.

Turn your R code into packages that others can easily download and use.

This practical book shows you how to bundle reusable R functions, sample data, and documentation together by applying author Hadley Wickham's package development philosophy. In the process, you'll work with `devtools`, `roxygen`, and `testthat`, a set of R packages that automate common development tasks. `Devtools` encapsulates best practices that Hadley has learned from years of working with this programming language. Ideal for developers, data scientists, and programmers with various backgrounds, this book starts you with the basics and shows you how to improve your package writing over time. You'll learn to focus on what you want your package to do, rather than think about package structure. Learn about the most useful components of an R package, including vignettes and unit tests Automate anything you can, taking advantage of the years of development experience embodied in `devtools` Get tips on good style, such as organizing functions into files Streamline your development process with `devtools` Learn the best way to submit your package to the Comprehensive R Archive Network (CRAN) Learn from a well-respect-

ed member of the R community who created 30 R packages, including ggplot2, dplyr, and tidy. A hands-on guide for professionals to perform various data science tasks in R. Key Features: Explore the popular R packages for data science. Use R for efficient data mining, text analytics and feature engineering. Become a thorough data science professional with the help of hands-on examples and use-cases in R. Book Description: R is the most widely used programming language, and when used in association with data science, this powerful combination will solve the complexities involved with unstructured datasets in the real world. This book covers the entire data science ecosystem for aspiring data scientists, right from zero to a level where you are confident enough to get hands-on with real-world data science problems. The book starts with an introduction to data science and introduces readers to popular R libraries for executing data science routine tasks. This book covers all the important processes in data science such as data gathering, cleaning data, and then uncovering patterns from it. You will explore algorithms such as machine

learning algorithms, predictive analytical models, and finally deep learning algorithms. You will learn to run the most powerful visualization packages available in R so as to ensure that you can easily derive insights from your data. Towards the end, you will also learn how to integrate R with Spark and Hadoop and perform large-scale data analytics without much complexity. What you will learn: Understand the R programming language and its ecosystem of packages for data science. Obtain and clean your data before processing. Master essential exploratory techniques for summarizing data. Examine various machine learning prediction models. Explore the H2O analytics platform in R for deep learning. Apply data mining techniques to available datasets. Work with interactive visualization packages in R. Integrate R with Spark and Hadoop for large-scale data analytics. Who this book is for: If you are a budding data scientist keen to learn about the popular pandas library, or a Python developer looking to step into the world of data analysis, this book is the ideal resource you need to get started. Some programming experience in

Python will be helpful to get the most out of this course.

Statistical Computation for Programmers, Scientists, Quants, Excel Users, and Other Professionals Using the open source R language, you can build powerful statistical models to answer many of your most challenging questions. R has traditionally been difficult for non-statisticians to learn, and most R books assume far too much knowledge to be of help. R for Everyone, Second Edition, is the solution. Drawing on his unsurpassed experience teaching new users, professional data scientist Jared P. Lander has written the perfect tutorial for anyone new to statistical programming and modeling. Organized to make learning easy and intuitive, this guide focuses on the 20 percent of R functionality you'll need to accomplish 80 percent of modern data tasks. Lander's self-contained chapters start with the absolute basics, offering extensive hands-on practice and sample code. You'll download and install R; navigate and use the R environment; master basic program control, data import, manipulation, and visualization; and walk through several essential tests. Then,

building on this foundation, you'll construct several complete models, both linear and nonlinear, and use some data mining techniques. After all this you'll make your code reproducible with LaTeX, RMarkdown, and Shiny. By the time you're done, you won't just know how to write R programs, you'll be ready to tackle the statistical problems you care about most. Coverage includes Explore R, RStudio, and R packages Use R for math: variable types, vectors, calling functions, and more Exploit data structures, including data.frames, matrices, and lists Read many different types of data Create attractive, intuitive statistical graphics Write user-defined functions Control program flow with if, ifelse, and complex checks Improve program efficiency with group manipulations Combine and reshape multiple datasets Manipulate strings using R's facilities and regular expressions Create normal, binomial, and Poisson probability distributions Build linear, generalized linear, and nonlinear models Program basic statistics: mean, standard deviation, and t-tests Train machine learning models Assess the quality of models and variable se-

lection Prevent overfitting and perform variable selection, using the Elastic Net and Bayesian methods Analyze univariate and multivariate time series data Group data via K-means and hierarchical clustering Prepare reports, slideshows, and web pages with knitr Display interactive data with RMarkdown and htmlwidgets Implement dashboards with Shiny Build reusable R packages with devtools and Rcpp Register your product at [informit.com/register](http://informit.com/register) for convenient access to downloads, updates, and corrections as they become available.

Learn how to use R to turn raw data into insight, knowledge, and understanding. This book introduces you to R, RStudio, and the tidyverse, a collection of R packages designed to work together to make data science fast, fluent, and fun. Suitable for readers with no previous programming experience, *R for Data Science* is designed to get you doing data science as quickly as possible. Authors Hadley Wickham and Garrett Golemund guide you through the steps of importing, wrangling, exploring, and modeling your data and communicating the

results. You'll get a complete, big-picture understanding of the data science cycle, along with basic tools you need to manage the details. Each section of the book is paired with exercises to help you practice what you've learned along the way. You'll learn how to: Wrangle—transform your datasets into a form convenient for analysis Program—learn powerful R tools for solving data problems with greater clarity and ease Explore—examine your data, generate hypotheses, and quickly test them Model—provide a low-dimensional summary that captures true "signals" in your dataset Communicate—learn R Markdown for integrating prose, code, and results John Chambers turns his attention to R, the enormously successful open-source system based on the S language. His book guides the reader through programming with R, beginning with simple interactive use and progressing by gradual stages, starting with simple functions. More advanced programming techniques can be added as needed, allowing users to grow into software contributors, benefiting their careers and the community. R

packages provide a powerful mechanism for contributions to be organized and communicated. This is the only advanced programming book on R, written by the author of the S language from which R evolved.

Satellite Earth observation (EO) data have already exceeded the petabyte scale and are increasingly freely and openly available from different data providers. This poses a number of issues in terms of volume (e.g., data volumes have increased 10x in the last 5 years); velocity (e.g., Sentinel-2 is capturing a new image of any given place every 5 days); and variety (e.g., different types of sensors, spatial/spectral resolutions). Traditional approaches to the acquisition, management, distribution, and analysis of EO data have limitations (e.g., data size, heterogeneity, and complexity) that impede their true information potential to be realized. Addressing these big data challenges requires a change of paradigm and a move away from local processing and data distribution methods to lower the barriers caused by data size and related complications in data management. To tackle these issues, EO data cubes (EODC) are a

new paradigm revolutionizing the way users can store, organize, manage, and analyze EO data. This Special Issue is consequently aiming to cover the most recent advances in EODC developments and implementations to broaden the use of EO data to larger communities of users, support decision-makers with timely and actionable information converted into meaningful geophysical variables, and ultimately unlock the information power of EO data. If you're like most R users, you have deep knowledge and love for statistics. But as your organization continues to collect huge amounts of data, adding tools such as Apache Spark makes a lot of sense. With this practical book, data scientists and professionals working with large-scale data applications will learn how to use Spark from R to tackle big data and big compute problems. Authors Javier Luraschi, Kevin Kuo, and Edgar Ruiz show you how to use R with Spark to solve different data analysis problems. This book covers relevant data science topics, cluster computing, and issues that should interest even the most advanced users. Analyze, explore, transform, and visualize data in

Apache Spark with R Create statistical models to extract information and predict outcomes; automate the process in production-ready workflows Perform analysis and modeling across many machines using distributed computing techniques Use large-scale data from multiple sources and different formats with ease from within Spark Learn about alternative modeling frameworks for graph processing, geospatial analysis, and genomics at scale Dive into advanced topics including custom transformations, real-time data processing, and creating custom Spark extensions

This is the only introduction you'll need to start programming in R, the open-source language that is free to download, and lets you adapt the source code for your own requirements. Co-written by one of the R Core Development Team, and by an established R author, this book comes with real R code that complies with the standards of the language. Unlike other introductory books on the ground-breaking R system, this book emphasizes programming, including the principles that apply to most computing lan-

guages, and techniques used to develop more complex projects. Learning the language is made easier by the frequent exercises and end-of-chapter reviews that help you progress confidently through the book. Solutions, datasets and any errata will be available from the book's web site. The many examples, all from real applications, make it particularly useful for anyone working in practical data analysis.

Learn exploratory data analysis concepts using powerful R packages to enhance your R data analysis skills  
 Key Features  
 Speed up your data analysis projects using powerful R packages and techniques  
 Create multiple hands-on data analysis projects using real-world data  
 Discover and practice graphical exploratory analysis techniques across domains  
 Book Description  
 Hands-On Exploratory Data Analysis with R will help you build not just a foundation but also expertise in the elementary ways to analyze data. You will learn how to understand your data and summarize its main characteristics. You'll also uncover the structure of your data, and you'll learn graphical and numerical techniques using the R language. This

book covers the entire exploratory data analysis (EDA) process—data collection, generating statistics, distribution, and invalidating the hypothesis. As you progress through the book, you will learn how to set up a data analysis environment with tools such as ggplot2, knitr, and R Markdown, using tools such as DOE Scatter Plot and SML2010 for multifactor, optimization, and regression data problems. By the end of this book, you will be able to successfully carry out a preliminary investigation on any dataset, identify hidden insights, and present your results in a business context. What you will learn  
 Learn powerful R techniques to speed up your data analysis project  
 Import, clean, and explore data using powerful R packages  
 Practice graphical exploratory analysis techniques  
 Create informative data analysis reports using ggplot2  
 Identify and clean missing and erroneous data  
 Explore data analysis techniques to analyze multi-factor datasets  
 Who this book is for  
 Hands-On Exploratory Data Analysis with R is for data enthusiasts who want to build a strong foundation for data analysis. If you are a data analyst, data engineer, software engi-

neer, or product manager, this book will sharpen your skills in the complete workflow of exploratory data analysis.

Data Science in Education Using R is the go-to reference for learning data science in the education field. The book answers questions like: What does a data scientist in education do? How do I get started learning R, the popular open-source statistical programming language? And what does a data analysis project in education look like? If you're just getting started with R in an education job, this is the book you'll want with you. This book gets you started with R by teaching the building blocks of programming that you'll use many times in your career. The book takes a "learn by doing" approach and offers eight analysis walkthroughs that show you a data analysis from start to finish, complete with code for you to practice with. The book finishes with how to get involved in the data science community and how to integrate data science in your education job. This book will be an essential resource for education professionals and researchers looking to increase their data analysis skills as part of their profession-

al and academic development.

Learn how to manipulate functions and expressions to modify how the R language interprets itself. This book is an introduction to metaprogramming in the R language, so you will write programs to manipulate other programs. Metaprogramming in R shows you how to treat code as data that you can generate, analyze, or modify. R is a very high-level language where all operations are functions and all functions are data that can be manipulated. This book shows you how to leverage R's natural flexibility in how function calls and expressions are evaluated, to create small domain-specific languages to extend R within the R language itself. What You'll Learn Find out about the anatomy of a function in R Look inside a function call Work with R expressions and environments Manipulate expressions in R Use substitutions Who This Book Is For Those with at least some experience with R and certainly for those with experience in other programming languages.

Geocomputation with R is for people who want to analyze, visualize and model geographic data with

open source software. It is based on R, a statistical programming language that has powerful data processing, visualization, and geospatial capabilities. The book equips you with the knowledge and skills to tackle a wide range of issues manifested in geographic data, including those with scientific, societal, and environmental implications. This book will interest people from many backgrounds, especially Geographic Information Systems (GIS) users interested in applying their domain-specific knowledge in a powerful open source language for data science, and R users interested in extending their skills to handle spatial data. The book is divided into three parts: (I) Foundations, aimed at getting you up-to-speed with geographic data in R, (II) extensions, which covers advanced techniques, and (III) applications to real-world problems. The chapters cover progressively more advanced topics, with early chapters providing strong foundations on which the later chapters build. Part I describes the nature of spatial datasets in R and methods for manipulating them. It also covers geographic data import/export and transforming coordinate refer-

ence systems. Part II represents methods that build on these foundations. It covers advanced map making (including web mapping), "bridges" to GIS, sharing reproducible code, and how to do cross-validation in the presence of spatial autocorrelation. Part III applies the knowledge gained to tackle real-world problems, including representing and modeling transport systems, finding optimal locations for stores or services, and ecological modeling. Exercises at the end of each chapter give you the skills needed to tackle a range of geospatial problems. Solutions for each chapter and supplementary materials providing extended examples are available at <https://geocompr.github.io/geocompkg/articles/>. Dr. Robin Lovelace is a University Academic Fellow at the University of Leeds, where he has taught R for geographic research over many years, with a focus on transport systems. Dr. Jakub Nowosad is an Assistant Professor in the Department of Geoinformation at the Adam Mickiewicz University in Poznan, where his focus is on the analysis of large datasets to understand environmental processes. Dr. Jannes Muenchow is a



Postdoctoral Researcher in the GIScience Department at the University of Jena, where he develops and teaches a range of geographic methods, with a focus on ecological modeling, statistical geocomputing, and predictive mapping. All three are active developers and work on a number of R packages, including `stplanr`, `sabre`, and `RQGIS`.

*Beginning R, Second Edition* is a hands-on book showing how to use the R language, write and save R scripts, read in data files, and write custom statistical functions as well as use built in functions. This book shows the use of R in specific cases such as one-way ANOVA analysis, linear and logistic regression, data visualization, parallel processing, bootstrapping, and more. It takes a hands-on, example-based approach incorporating best practices with clear explanations of the statistics being done. It has been completely rewritten since the first edition to make use of the latest packages and features in R version 3. R is a powerful open-source language and programming environment for statistics and has become the de facto standard for doing, teaching, and learning computational statistics. R

is both an object-oriented language and a functional language that is easy to learn, easy to use, and completely free. A large community of dedicated R users and programmers provides an excellent source of R code, functions, and data sets, with a constantly evolving ecosystem of packages providing new functionality for data analysis. R has also become popular in commercial use at companies such as Microsoft, Google, and Oracle. Your investment in learning R is sure to pay off in the long term as R continues to grow into the go to language for data analysis and research. What You Will Learn: How to acquire and install R Hot to import and export data and scripts How to analyze data and generate graphics How to program in R to write custom functions Hot to use R for interactive statistical explorations How to conduct bootstrapping and other advanced techniques

*Hands-on Machine Learning with R* provides a practical and applied approach to learning and developing intuition into today's most popular machine learning methods. This book serves as a practitioner's guide to the machine learning process

and is meant to help the reader learn to apply the machine learning stack within R, which includes using various R packages such as `glmnet`, `h2o`, `ranger`, `xgboost`, `keras`, and others to effectively model and gain insight from their data. The book favors a hands-on approach, providing an intuitive understanding of machine learning concepts through concrete examples and just a little bit of theory. Throughout this book, the reader will be exposed to the entire machine learning process including feature engineering, resampling, hyperparameter tuning, model evaluation, and interpretation. The reader will be exposed to powerful algorithms such as regularized regression, random forests, gradient boosting machines, deep learning, generalized low rank models, and more! By favoring a hands-on approach and using real world data, the reader will gain an intuitive understanding of the architectures and engines that drive these algorithms and packages, understand when and how to tune the various hyperparameters, and be able to interpret model results. By the end of this book, the reader should have a firm grasp of R's machine

learning stack and be able to implement a systematic approach for producing high quality modeling results. Features:

- Offers a practical and applied introduction to the most popular machine learning methods.
- Topics covered include feature engineering, resampling, deep learning and more.
- Uses a hands-on approach and real world data.

This book introduces readers to the fundamentals of creating presentation graphics using R, based on 111 detailed and complete scripts. It shows how bar and column charts, population pyramids, Lorenz curves, box plots, scatter plots, time series, radial polygons, Gantt charts, heat maps, bump charts, mosaic and balloon charts, and a series of different thematic map types can be created using R's Base Graphics System. Every example uses real data and includes step-by-step explanations of the figures and their programming. This second edition contains additional examples for cartograms, chord-diagrams and networks, and interactive visualizations with Javascript. The open source software R is an established standard and a powerful tool for various visualizing applications, inte-

grating nearly all technologies relevant for data visualization. The basic software, enhanced by more than 14000 extension packs currently freely available, is intensively used by organizations including Google, Facebook and the CIA. The book serves as a comprehensive reference guide to a broad variety of applications in various fields. This book is intended for all kinds of R users, ranging from experts, for whom especially the example codes are particularly useful, to beginners, who will find the finished graphics most helpful in learning what R can actually deliver.

There are many excellent R resources for visualization, data science, and package development. Hundreds of scattered vignettes, web pages, and forums explain how to use R in particular domains. But little has been written on how to simply make R work effectively—until now. This hands-on book teaches novices and experienced R users how to write efficient R code. Drawing on years of experience teaching R courses, authors Colin Gillespie and Robin Lovelace provide practical advice on a range of topics—from optimizing the set-up of RStudio

to leveraging C++—that make this book a useful addition to any R user's bookshelf. Academics, business users, and programmers from a wide range of backgrounds stand to benefit from the guidance in Efficient R Programming. Get advice for setting up an R programming environment Explore general programming concepts and R coding techniques Understand the ingredients of an efficient R workflow Learn how to efficiently read and write data in R Dive into data carpentry—the vital skill for cleaning raw data Optimize your code with profiling, standard tricks, and other methods Determine your hardware capabilities for handling R computation Maximize the benefits of collaborative R programming Accelerate your transition from R hacker to R programmer Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most

frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

R Markdown: The Definitive Guide is the first official book authored by the core R Markdown developers that provides a comprehensive and accurate reference to the R Markdown ecosystem. With R Markdown, you can easily create reproducible data analysis reports, presentations, dashboards, interactive applications, books,

dissertations, websites, and journal articles, while enjoying the simplicity of Markdown and the great power of R and other languages. In this book, you will learn Basics: Syntax of Markdown and R code chunks, how to generate figures and tables, and how to use other computing languages Built-in output formats of R Markdown: PDF/HTML/Word/RTF/Markdown documents and ioslides/Slidy/Beamer/PowerPoint presentations Extensions and applications: Dashboards, Tufte handouts, xaringan/reveal.js presentations, websites, books, journal articles, and interactive tutorials Advanced topics: Parameterized reports, HTML widgets, document templates, custom output formats, and Shiny documents. Yihui Xie is a software engineer at RStudio. He has authored and co-authored several R packages, including knitr, rmarkdown, bookdown, blogdown, shiny, xaringan, and animation. He has published three other books, Dynamic Documents with R and knitr, bookdown: Authoring Books and Technical Documents with R Markdown, and blogdown: Creating Websites with R Markdown. J.J. Allaire is the founder of RStudio and

the creator of the RStudio IDE. He is an author of several packages in the R Markdown ecosystem including rmarkdown, flexdashboard, learnr, and radix. Garrett Golemund is the co-author of R for Data Science and author of Hands-On Programming with R. He wrote the lubridate R package and works for RStudio as an advocate who trains engineers to do data science with R and the Tidyverse.

Master the programming language of choice among statisticians and data analysts worldwide Coming to grips with R can be tough, even for seasoned statisticians and data analysts. Enter R For Dummies, the quick, easy way to master all the R you'll ever need. Requiring no prior programming experience and packed with practical examples, easy, step-by-step exercises, and sample code, this extremely accessible guide is the ideal introduction to R for complete beginners. It also covers many concepts that intermediate-level programmers will find extremely useful. Master your R ABCs ? get up to speed in no time with the basics, from installing and configuring R to writing simple scripts and performing simultaneous calculations on many

variables Put data in its place ? get to know your way around lists, data frames, and other R data structures while learning to interact with other programs, such as Microsoft Excel Make data dance to your tune ? learn how to reshape and manipulate data, merge data sets, split and combine data, perform calculations on vectors and arrays, and much more Visualize it ? learn to use R's powerful data visualization features to create beautiful and informative graphical presentations of your data Get statistical ? find out how to do simple statistical analysis, summarize your variables, and conduct classic statistical tests, such as t-tests Expand and customize R ? get the lowdown on how to find, install, and make the most of add-on packages created by the global R community for a wide variety of purposes Open the book and find: Help downloading, installing, and configuring R Tips for getting data in and out of R Ways to use data frames and lists to organize data How to manipulate and process data Advice on fitting regression models and ANOVA Helpful hints for working with graphics How to code in R What R mailing lists and

forums can do for you Effective visualization is the best way to communicate information from the increasingly large and complex datasets in the natural and social sciences. But with the increasing power of visualization software today, scientists, engineers, and business analysts often have to navigate a bewildering array of visualization choices and options. This practical book takes you through many commonly encountered visualization problems, and it provides guidelines on how to turn large datasets into clear and compelling figures. What visualization type is best for the story you want to tell? How do you make informative figures that are visually pleasing? Author Claus O. Wilke teaches you the elements most critical to successful data visualization. Explore the basic concepts of color as a tool to highlight, distinguish, or represent a value Understand the importance of redundant coding to ensure you provide key information in multiple ways Use the book's visualizations directory, a graphical guide to commonly used types of data visualizations Get extensive examples of good and bad

figures Learn how to use figures in a document or report and how employ them effectively to tell a compelling story

Data science has taken the world by storm. Every field of study and area of business has been affected as people increasingly realize the value of the incredible quantities of data being generated. But to extract value from those data, one needs to be trained in the proper data science skills. The R programming language has become the de facto programming language for data science. Its flexibility, power, sophistication, and expressiveness have made it an invaluable tool for data scientists around the world. This book is about the fundamentals of R programming. You will get started with the basics of the language, learn how to manipulate datasets, how to write functions, and how to debug and optimize code. With the fundamentals provided in this book, you will have a solid foundation on which to build your data science toolbox.

Learn how to perform data analysis with the R language and software environment, even if you have little or no programming experience. With the tutorials in this hands-on

guide, you'll learn how to use the essential R tools you need to know to analyze data, including data types and programming concepts. The second half of Learning R shows you real data analysis in action by covering everything from importing data to publishing your results. Each chapter in the book includes a quiz on what you've learned, and concludes with exercises, most of which involve writing R code. Write a simple R program, and discover what the language can do. Use data types such as vectors, arrays, lists, data frames, and strings. Execute code conditionally or repeatedly with branches and loops. Apply R add-on packages, and package your own work for others. Learn how to clean data you import from a variety of sources. Understand data through visualization and summary statistics. Use statistical models to pass quantitative judgments about data and make predictions. Learn what to do when things go wrong while writing data analysis code.

"Learning Statistics with R" covers the contents of an introductory statistics class, as typically taught to undergraduate psychology students, focusing on the use of the R statistical

software and adopting a light, conversational style throughout. The book discusses how to get started in R, and gives an introduction to data manipulation and writing scripts. From a statistical perspective, the book discusses descriptive statistics and graphing first, followed by chapters on probability theory, sampling and estimation, and null hypothesis testing. After introducing the theory, the book covers the analysis of contingency tables, t-tests, ANOVAs and regression. Bayesian statistics are covered at the end of the book. For more information (and the opportunity to check the book out before you buy!) visit <http://ua.edu.au/ccs/teaching/lr> or <http://learningstatisticswithr.com>

"Write Your Own Functions and Simulations."---  
Cover.

Become an efficient data scientist with R. About This Book Explore the R language from basic types and data structures to advanced topics. Learn how to tackle programming problems and explore both functional and object-oriented programming techniques. Learn how to address the core problems of programming

in R and leverage the most popular packages for common tasks. Who This Book Is For This is the perfect tutorial for anyone who is new to statistical programming and modeling. Anyone with basic programming and data processing skills can pick this book up to systematically learn the R programming language and crucial techniques. What You Will Learn Explore the basic functions in R and familiarize yourself with common data structures. Work with data in R using basic functions of statistics, data mining, data visualization, root solving, and optimization. Get acquainted with R's evaluation model with environments and meta-programming techniques with symbol, call, formula, and expression. Get to grips with object-oriented programming in R: including the S3, S4, RC, and R6 systems. Access relational databases such as SQLite and non-relational databases such as MongoDB and Redis. Get to know high performance computing techniques such as parallel computing and Rcpp. Use web scraping techniques to extract information. Create RMarkdown, an interactive app with Shiny, DiagramR, interactive charts,

ggvis, and more In Detail R is a high-level functional language and one of the must-know tools for data science and statistics. Powerful but complex, R can be challenging for beginners and those unfamiliar with its unique behaviors. Learning R Programming is the solution - an easy and practical way to learn R and develop a broad and consistent understanding of the language. Through hands-on examples you'll discover powerful R tools, and R best practices that will give you a deeper understanding of working with data. You'll get to grips with R's data structures and data processing techniques, as well as the most popular R packages to boost your productivity from the offset. Start with the basics of R, then dive deep into the programming techniques and paradigms to make your R code excel. Advance quickly to a deeper understanding of R's behavior as you learn common tasks including data analysis, databases, web scraping, high performance computing, and writing documents. By the end of the book, you'll be a confident R programmer adept at solving problems with the right techniques. Style and approach Developed

to make learning easy and intuitive, this book comes packed with a wide variety of statistical and graphical techniques and a wealth of practical information for anyone looking to get started with this exciting and powerful language.

This easy-to-follow textbook provides a student-friendly introduction to programming and algorithms. Emphasis is placed on the threshold concepts that present barriers to learning, including the questions that students are often too embarrassed to ask. The book promotes an active learning style in which a deeper understanding is gained from evaluating, questioning, and discussing the material, and practised in hands-on exercises. Although R is used as the language of choice for all programs, strict assumptions are avoided in the explanations in order for these to remain applicable to other programming languages. Features: provides exercises at the end of each chapter; includes three mini projects in the final chapter; presents a list of titles for further reading at the end of the book; discusses the key aspects of loops, recursions, program and algorithm efficiency and ac-

curacy, sorting, linear systems of equations, and file processing; requires no prior background knowledge in this area.

The official book on the Rust programming language, written by the Rust development team at the Mozilla Foundation, fully updated for Rust 2018. The Rust Programming Language is the official book on Rust: an open source systems programming language that helps you write faster, more reliable software. Rust offers control over low-level details (such as memory usage) in combination with high-level ergonomics, eliminating the hassle traditionally associated with low-level languages. The authors of The Rust Programming Language, members of the Rust Core Team, share their knowledge and experience to show you how to take full advantage of Rust's features--from installation to creating robust and scalable programs. You'll begin with basics like creating functions, choosing data types, and binding variables and then move on to more advanced concepts, such as: Ownership and borrowing, lifetimes, and traits Using Rust's memory safety guarantees to build fast, safe programs Testing, error handling,

and effective refactoring Generics, smart pointers, multithreading, trait objects, and advanced pattern matching Using Cargo, Rust's built-in package manager, to build, test, and document your code and manage dependencies How best to use Rust's advanced compiler with compiler-led programming techniques You'll find plenty of code examples throughout the book, as well as three chapters dedicated to building complete projects to test your learning: a number guessing game, a Rust implementation of a command line tool, and a multi-threaded server. New to this edition: An extended section on Rust macros, an expanded chapter on modules, and appendixes on Rust development tools and editions.

Learn how to program by diving into the R language, and then use your newfound skills to solve practical data science problems. With this book, you'll learn how to load data, assemble and disassemble data objects, navigate R's environment system, write your own functions, and use all of R's programming tools. RStudio Master Instructor Garrett Grolemond not only teaches you how to pro-

gram, but also shows you how to get more from R than just visualizing and modeling data. You'll gain valuable programming skills and support your work as a data scientist at the same time. Work hands-on with three practical data analysis projects based on casino games Store, retrieve, and change data values in your computer's memory Write programs and simulations that outperform those written by typical R users Use R programming tools such as if else statements, for loops, and S3 classes Learn how to write lightning-fast vectorized R code Take advantage of R's package system and debugging tools Practice and apply R programming concepts as you learn them

This book is an introduction to statistics for linguists using the open source software R. It is aimed at students and instructors/professors with little or no statistical background and is written in a non-technical and reader-friendly/accessible style. It first introduces in detail the overall logic underlying quantitative studies: exploration, hypothesis formulation and operationalization, and the notion and meaning of significance tests. It then

introduces some basics of the software R relevant to statistical data analysis. A chapter on descriptive statistics explains how summary statistics for frequencies, averages, and correlations are generated with R and how they are graphically represented best. A chapter on analytical statistics explains how statistical tests are performed in R on the basis of many different linguistic case studies: For nearly every single example, it is explained what the structure of the test looks like, how hypotheses are formulated, explored, and tested for statistical significance, how the results are graphically represented, and how one would summarize them in a paper/article. A chapter on selected multifactorial methods introduces how more complex research designs can be studied: methods for the study of multifactorial frequency data, correlations, tests for means, and binary response data are discussed and exemplified step-by-step. Also, the exploratory approach of hierarchical cluster analysis is illustrated in detail. The book comes with many exercises, boxes with short think breaks and warnings, recommendations for further study, and answer keys as

well as a statistics for linguists newsgroup on the companion website. The volume is aimed at beginners on every level of linguistic education: undergraduate students, graduate students, and instructors/professors and can be used in any research methods and statistics class for linguists. It presupposes no quantitative/statistical knowledge whatsoever and, unlike most competing books, begins at step 1 for every method and explains everything explicitly.

This step-by-step guide demonstrates how to build simple-to-advanced applications through examples in R using modern tools. About This Book Get a firm hold on the fundamentals of R through practical hands-on examples Get started with good R programming fundamentals for data science Exploit the different libraries of R to build interesting applications in R Who This Book Is For This book is for aspiring data science professionals or statisticians who would like to learn about the R programming language in a practical manner. Basic programming knowledge is assumed. What You Will Learn Discover techniques to leverage R's features, and work with packages

Perform a descriptive analysis and work with statistical models using R Work efficiently with objects without using loops Create diverse visualizations to gain better understanding of the data Understand ways to produce good visualizations and create reports for the results Read and write data from relational databases and REST APIs, both packaged and unpackaged Improve performance by writing better code, delegating that code to a more efficient programming language, or making it parallel In Detail R is a high-level statistical language and is widely used among statisticians and data miners to develop analytical applications. Often, data analysis people with great analytical skills lack solid programming knowledge and are unfamiliar with the correct ways to use R. Based on the version 3.4, this book will help you develop strong fundamentals when working with R by taking you through a series of full representative examples, giving you a holistic view of R. We begin with the basic installation and configuration of the R environment. As you progress through the exercises, you'll become thoroughly acquainted with R's features and its pack-

ages. With this book, you will learn about the basic concepts of R programming, work efficiently with graphs, create publication-ready and interactive 3D graphs, and gain a better understanding of the data at hand. The detailed step-by-step instructions will enable you to get a clean set of data, produce good visualizations, and create reports for the results. It also teaches you various methods to perform code profiling and performance enhancement with good programming practices, delegation, and parallelization. By the end of this book, you will know how to efficiently work with data, create quality visualizations and reports, and develop code that is modular, expressive, and maintainable. Style and Approach This is an easy-to-understand guide filled with real-world examples, giving you a holistic view of R and practical, hands-on experience.

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. See What's New in the Second Edition: Increased emphasis on more idiomatic R provides a grounding in the functionality of base R. Discussions of the use of RStudio helps new R users avoid as many pitfalls as possible. Use of knitr package makes code easier to read and therefore easier to reason about. Additional information on computer-intensive approaches motivates the traditional approach. Updated examples and data make the information current and topical. The book has an accompanying package, UsingR, available from CRAN, R's repository of user-contributed packages. The package contains the data sets mentioned in the text (`data(package="UsingR")`), answers to selected problems (`answers()`), a few demonstrations (`demo()`), the errata (`errata()`), and sample code from the text. The topics of this text line up closely with traditional teaching progression; however, the book also highlights computer-intensive approaches to motivate the more

traditional approach. The authors emphasize realistic data and examples and rely on visualization techniques to gather insight. They introduce statistics and R seamlessly, giving students the tools they need to use R and the information they need to navigate the sometimes complex world of statistical computing.

Doing Meta-Analysis with R: A Hands-On Guide serves as an accessible introduction on how meta-analyses can be conducted in R. Essential steps for meta-analysis are covered, including calculation and pooling of outcome measures, forest plots, heterogeneity diagnostics, subgroup analyses, meta-regression, methods to control for publication bias, risk of bias assessments and plotting tools. Advanced but highly relevant topics such as network meta-analysis, multi-three-level meta-analyses, Bayesian meta-analysis approaches and SEM meta-analysis are also covered. A companion R package, dmetar, is introduced at the beginning of the guide. It contains data sets and several helper functions for the meta and metafor package used in the guide. The programming and statistical

background covered in the book are kept at a non-expert level, making the book widely accessible. Features • Contains two introductory chapters on how to set up an R environment and do basic imports/manipulations of meta-analysis data, including exercises • Describes statistical concepts clearly and concisely before applying them in R • Includes step-by-step guidance through the coding required to perform meta-analyses, and a companion R package for the book

This textbook offers an easy-to-follow, practical guide to modern data analysis using the programming language R. The chapters cover topics such as the fundamentals of programming in R, data collection and preprocessing, including web scraping, data visualization, and statistical methods, including multivariate analysis, and feature exercises at the end of each section. The text requires only basic statistics skills, as it strikes a balance between statistical and mathematical understanding and implementation in R, with a special emphasis on reproducible examples and real-world applications. This textbook is primarily intended for undergraduate students of

mathematics, statistics, physics, economics, finance and business who are pursuing a career in data analytics. It will be

equally valuable for master students of data science and industry professionals who want to conduct data analyses.

An introductory textbook

offering a low barrier entry to data science; the hands-on approach will appeal to students from a range of disciplines.