

Using the R Commander: A Point-and-Click Interface

for R. John Fox. Boca Raton, FL: Chapman & Hall, 2016, xiv+219 pp., \$59.95(P), ISBN: 978-1-49-874190-3.

In this welcome addition to the Chapman & Hall/CRC R Series, John Fox provides a complete guide to the installation and use of his R point-and-click graphical user interface—the R Commander. The R Commander package allows students in a basic or intermediate statistics class to access the wide variety of tools in R without the increased cognitive load of learning R commands. As Fox writes in the preface of the book, “one doesn’t want a basic

statistics course to devolve into an exercise in learning how to write commands for statistical software, letting the software tail wag the statistical dog” (p. xiii). Though the software was originally intended for the introductory course, R Commander offers an array of more advanced statistical methods such as generalized linear models and nonparametric tests. Thus, the program is also practical for researchers and scientists who would like to perform statistical analyses without learning a command-based software. Since it displays the R commands in an R script file, R Commander can also be used as a starting point to learning R code.

After a short introductory chapter, Chapter 2 details the installation of R and R Commander for Microsoft Windows, Mac OS X, and Linux/Unix systems, including sections on troubleshooting and instructions for installing XQuartz on Mac OS X (which is required for running R Commander). Since installation instructions change with every iteration of operating systems, updates, and software, the author includes dynamic online appendices with up-to-date detailed installation instructions. Additionally, the author maintains an installation notes website (<http://socserv.mcmaster.ca/jfox/Misc/Rcmdr/installation-notes.html>) and invites readers to contact him with corrections, comments, and suggestions.

Chapter 3 offers the reader a “quick tour” of R Commander through an entire data analysis of data from the U.S. General Social Survey. The reader is led through importing the data into R, examining and re-coding variables, creating a bar graph and a contingency table, and creating a report as a dynamic document using R Markdown. For advanced users, Fox provides instructions for incorporating LaTeX code into the report, editing the R code directly in the script, and customizing R Commander. The text uses italics and “>” for drop-down menu commands and type-face font for R console commands, making it easy for the reader to distinguish between R Commander menu actions and written code or output.

Chapters in this book generally follow the order of the menu items in R Commander: Data, Statistics, Graphs, Models, Distributions. Chapter 4 illustrates more details on data input, data manipulation and data management using datasets on occupational prestige in the U.S. and Canada. Through the use of bulleted lists and numerous figures, the format of the chapter easily allows the user to follow along in their own R Commander environment. Creating descriptive statistics and graphical summaries in R Commander is the topic of Chapter 5, using a variety of datasets including the prestige data from Chapter 4. The chapter offers a variety of graphical examples in color figures, such as a segmented bar graph, enhanced scatterplot with 50% concentration ellipses, least-squares lines, and loess lines, and a plot of 95% confidence intervals based on the means of 100 samples drawn from a normal population.

Conducting statistical inference and building linear and generalized linear models in R Commander are introduced in Chapters 6 and 7. Though many of these inferential topics are covered in an introductory statistics course, the author also leads the user through more advanced techniques such as nonparametric tests, linear contrasts, regression splines, partial residuals and effect plots, and model selection. Chapter 8 covers probability distributions and simulations in R Commander, including an example of a simple simulation to illustrate the central limit theorem.

The book ends with a short chapter on using R Commander plug-in packages and provides an example of a survival analysis using the `RcmdrPlugin.survival` package. Fox uses data from a randomized experiment conducted on 432 male convicts who were released from prison in the 1970s and randomly assigned to either receive financial aid or not; the study goal is to determine if financial aid reduces the risk of rearrest.

Using the R Commander: A Point-and-Click Interface for R serves as a guide to using R Commander for the entire data analysis process, from importing, summarizing, and visualizing data, to conducting statistical analyses and generating reports. Its goal is not to “explicate statistical methods but rather to illustrate their application in the R Commander” (p. 194). Due to minimal coverage of introductory statistics content, the book could not be used as the sole textbook for an introductory statistics course, but it would be a helpful supplemental text for a course which uses R Commander. The author’s organization of the content, use of bulleted lists and menu screenshots, and the expanded R Commander menus in an Appendix also make this book a useful reference for R Commander users.

Having used R Commander in my introductory statistics courses, I would recommend its use in a first course in statistics for several reasons. First, R Commander gives students experience with a statistical software package while allowing the course to focus on important statistical concepts. Second, students become familiar with R code while using the program, allowing students to quickly transition to R (or RStudio) in a second course. Though it is a point-and-click software, R Commander encourages reproducibility in its use of R Markdown and the ability to view and save R code. Thus, R and R Commander are powerful, free open-source software environments.