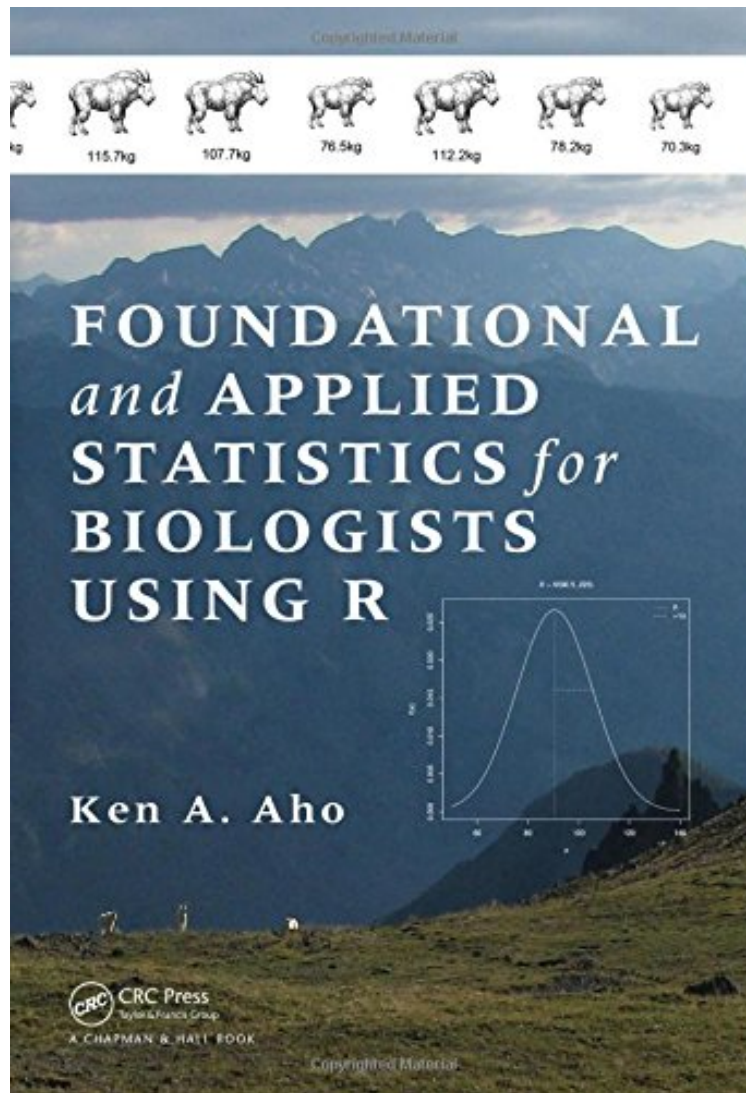


(Pdf free) Foundational and Applied Statistics for Biologists Using R

Foundational and Applied Statistics for Biologists Using R

Ken A. Aho

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#1198534 in Books Chapman and Hall/CRC 2013-12-17Original language:EnglishPDF # 1 1.60 x 7.30 x 10.10l, 3.05 #File Name: 1439873380618 pages | File size: 17.Mb

Ken A. Aho : Foundational and Applied Statistics for Biologists Using R before purchasing it in order to gage whether or not it would be worth my time, and all praised Foundational and Applied Statistics for Biologists Using R:

0 of 0 people found the following review helpful. For statistical methods in the natural sciences, BUY THIS BOOK!By D.R. HelselAn excellent and comprehensive book on statistics applied to biology. Dr. Aho covers the basics of probability, pdfs and parameters. His discussion includes recent (for environmental sciences) developments: Intervals include bootstrapping; hypothesis tests include permutation tests. Sampling designs acknowledge that there is more than just random sampling, including designs for regression modeling and group tests. He pushes you by asking

the most important design question, one that few consider -- "what is your question?". His chapters on correlation, regression and ANOVA are the longest and most detailed -- appropriate for biologists I suppose, but adding more to the shorter chapter on other types of hypothesis tests would be my only criticism of the book. His use of R aids in making the software more accessible to those who need it -- those who are still using Excel or far-less powerful statistical software that cannot do the methods he discusses (if you currently don't have the capability to do bootstrapping and permutation tests, you need better software). Overall, I highly recommend this book for biologists, and others in the natural sciences, who are looking for a comprehensive and well-written description of useful methods.

Full of biological applications, exercises, and interactive graphical examples, *Foundational and Applied Statistics for Biologists Using R* presents comprehensive coverage of both modern analytical methods and statistical foundations. The author harnesses the inherent properties of the R environment to enable students to examine the code of complicated procedures step by step and thus better understand the process of obtaining analysis results. The graphical capabilities of R are used to provide interactive demonstrations of simple to complex statistical concepts. Assuming only familiarity with algebra and general calculus, the text offers a flexible structure for both introductory and graduate-level biostatistics courses. The first seven chapters address fundamental topics in statistics, such as the philosophy of science, probability, estimation, hypothesis testing, sampling, and experimental design. The remaining four chapters focus on applications involving correlation, regression, ANOVA, and tabular analyses. Unlike classic biometric texts, this book provides students with an understanding of the underlying statistics involved in the analysis of biological applications. In particular, it shows how a solid statistical foundation leads to the correct application of procedures, a clear understanding of analyses, and valid inferences concerning biological phenomena. Web Resource An R package (asbio) developed by the author is available from CRAN. Accessible to those without prior command-line interface experience, this companion library contains hundreds of functions for statistical pedagogy and biological research. The authors website also includes an overview of R for novices.

"The book is written in an accessible style for undergraduate students and is built in a lecture-style format. Each chapter commences with a brief description of its contents in the how to read this chapter section and finishes with a summary and exercises to help the students practice using the notions that they discovered within the chapter. The book also contains an extensive appendix of mathematical concepts and has the advantage of a large collection of references, which can be accessed for further studies." Zentralblatt MATH 1306 "The book contains a host of examples to illustrate various methods of analysis and statistical concepts The statistical concepts described are illustrated with some terrific interactive GUIs and sliders; code to implement these is provided in the R package asbio, which accompanies the text. More than a plaything for the distracted statistician, these are great resources for teaching students and conveying statistical ideas to the non-statistically trained. does this book offer anything new, not available elsewhere in the crowded market of statistics books using R? Yes it does. The approach, focusing on statistical foundations first, building upwards from basic philosophical concepts, before progressing to implementation and real world applications, is certainly novel. I would, without a doubt, recommend this book to those statisticians working with biologists "Statistical Methods in Medical Research, 2015 "This is a terrific intermediate-level modern applied statistics text for biologists or anyone else who is interested in data analysis. a thorough job of introducing and detailing the main concepts, the methods, and the pleasures of modern data analysis. It is a visually pleasing book with good layouts, nice typefaces, and great tables and graphics and the R code to produce them! A great way for a class to really engage with R graphics. The author has put effort into making the book. A website and a companion R package, asbio, serve two audiences: introductory classes and more advanced classes. He has succeeded nicely in writing a dual-level book. I would strongly recommend the book for mature students I look forward to using it with my upper-level undergrads and the Masters and PhD students I continue to work with." MAA s, September 2014 From the Author Biologists frequently misuse statistics because they fail to understand the foundations on which they are based. The comprehension of foundations leads directly to a deeper appreciation of both the mechanisms and purpose of statistics. The text encourages students to construct their own sense of what is being learned through the interactive graphical capabilities of R. Statistical software often exacerbate problems in student comprehension by providing answers without requiring any level of understanding. The open environment of R, however, reveals processes other software lock away in black boxes. The book errata, a link to the electronic appendix to the book, "Introduction to R", book code, and other helpful materials can be found at the book's website: www2.cose.isu.edu/~ahoken/book/