Statistical Testing Strategies in the Health Sciences (Chapman Hall/CRC Biostatistics Series)

Albert Vexler, Alan D. Hutson, Xiwei Chen
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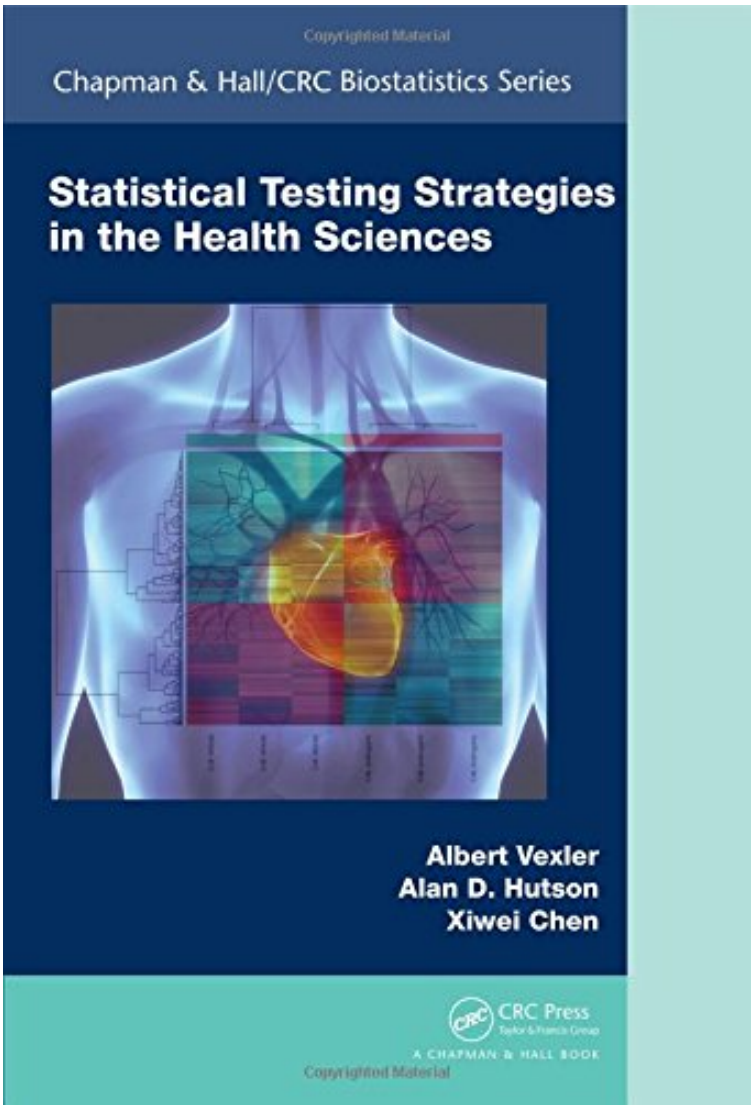

#3715304 in Books 2016-05-25Original language:EnglishPDF # 1 10.50 x 7.25 x 1.75l, .0 #File Name: 1498730817703 pages | File size: 72.Mb

Albert Vexler, Alan D. Hutson, Xiwei Chen : Statistical Testing Strategies in the Health Sciences (Chapman Hall/CRC Biostatistics Series) before purchasing it in order to gage whether or not it would be worth my time, and all praised Statistical Testing Strategies in the Health Sciences (Chapman Hall/CRC Biostatistics Series):

Statistical Testing Strategies in the Health Sciences provides a compendium of statistical approaches for decision making, ranging from graphical methods and classical procedures through computationally intensive bootstrap strategies to advanced empirical likelihood techniques. It bridges the gap between theoretical statistical methods and practical procedures applied to the planning and analysis of health-related experiments. The book is organized primarily based on the type of questions to be answered by inference procedures or according to the general type of mathematical derivation. It establishes the theoretical framework for each method, with a substantial amount of chapter notes included for additional reference. It then focuses on the practical application for each concept, providing real-world examples that can be easily implemented using corresponding statistical software code in R and SAS. The book also explains the basic elements and methods for constructing correct and powerful statistical decision-making processes to be adapted for complex statistical applications. With techniques spanning robust statistical methods to more computationally intensive approaches, this book shows how to apply correct and efficient testing mechanisms to various problems encountered in medical and epidemiological studies, including clinical trials. Theoretical statisticians, medical researchers, and other practitioners in epidemiology and clinical research will appreciate the books novel theoretical and applied results. The book is also suitable for graduate students in biostatistics, epidemiology, health-related sciences, and areas pertaining to formal decision-making mechanisms.

"This book covers a wide range of statistical approaches to hypothesis testing for decision-making in various health science research fields. It provides not only refreshing information on many routinely used statistical methods but also a good review of more advanced methods such as empirical likelihood (EL) methods For clinicians or medical researchers with some training in statistics, many chapters can serve as references. For research statisticians, the book provides important properties and theoretical elaborations for the methods. For pharmaceutical drug trial statisticians in particular, the book on one hand offers a systematic account of many methods and on another hand exposes them to the methods used in some related research fields (e.g., diagnosis identification and testing) that lead one to see the interrelations across such research fields. Throughout the book, the authors transfer the statistical concepts and methods to real-world applications, with emphasis on implementing the methods in R and SAS program code and on interpreting the resultsAnother great feature of the book is that the authors provide supplemental materials on the evolution of the methodology with additional research notes in each chapter. These give research-oriented statisticians a comprehensive list of references which would be quite helpful for their research. The supplemental materials are also entertaining for the general readers to learn the chronology of statistical theory and methods."X. Daniel Jia, published in Journal of Biopharmaceutical Statistics, April 2017 "With techniques spanning robust statistical methods to more computationally intensive approaches, this book shows how to apply correct and efficient testing mechanisms to various problems encountered in medical and epidemiological studies, including clinical trials."TLT Magazine, September 2016 "This comprehensive book takes the reader from the underpinnings of statistical inference through to cutting-edge modern analytical techniques. Along the way, the authors explore graphical representations of data, a key component of any data analysis; standard procedures such as the t-test and tests for independence; and modern methods, including the bootstrap and empirical likelihood method. The presentation focuses on practical applications interwoven with theoretical rationale, with an emphasis on how to carry out procedures and interpret the results. Numerous software examples (R and SAS) are provided, such that the readers should be able to reproduce plots and other analyses on their own. A wealth of examples from real data sets, web resources, supplemental notes, and plentiful references are provided, which round out the materials."From the Foreword by Nicole Lazar, Department of Statistics, University of GeorgiaAbout the AuthorAlbert Vexler is a tenured associate professor in the Department of Biostatistics at the State University of New York (SUNY) at Buffalo. Dr. Vexler is the associate editor of Biometrics and BMC Medical Research Methodology. He is the author and coauthor of various publications that contribute to the theoretical and applied aspects of statistics in medical research. Many of his papers and statistical software developments have appeared in statistical and biostatistical journals that have top-rated impact factors and are historically recognized as leading scientific journals. Dr. Vexler was awarded a National Institutes of Health grant to develop novel nonparametric data analysis and statistical methodology. His research interests include receiver operating characteristic curve analysis, measurement error, optimal designs, regression models, censored data, change point problems, sequential analysis, statistical epidemiology, Bayesian decision-making mechanisms, asymptotic methods of statistics, forecasting, sampling, optimal testing, nonparametric tests, empirical likelihoods, renewal theory, Tauberian theorems, time series, categorical analysis, multivariate analysis, multivariate testing of complex hypotheses, factor and principal component analysis, statistical biomarker evaluations, and best combinations of biomarkers. Alan D. Hutson is the chair of biostatistics and bioinformatics at Roswell Park Cancer Institute. He is also the biostatistical, epidemiological, and research design director for SUNYs National Institutes of Healthfunded Clinical and Translational Research Award. Dr. Hutson is a fellow of the American Statistical Association, the associate editor of Communications in Statistics and the Sri Lankan Journal of Applied Statistics, and a New York State NYSTAR Distinguished Professor. He has written more than 200 peer-reviewed publications. Dr. Hutsons methodological work focuses on nonparametric methods for biostatistical applications as they pertain to statistical

functionals. He also has several years of experience in the design and analysis of clinical trials. Xiwei Chen is a biostatistician at Johnson Johnson Vision Care, Inc. She obtained her PhD in biostatistics from SUNY at Buffalo, where her advisor was Dr. Albert Vexler. Dr. Chen is the author or coauthor of more than 10 papers and several book chapters on biostatistical areas concerning statistical approaches related to disease diagnoses. She is also very active as a reviewer for statistical journals. Her research interests include empirical likelihood methods, the receiver operating characteristic curve methodology, and statistical diagnosis and its applications.