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Nonparametric Statistical Methods - Myles Hollander 2013-11-25 Praise for the Second Edition "This book should be an essential part of the personallibrary of every practicingstatistician."—Technometrics Thoroughly revised and updated, the new edition of NonparametricStatistical Methods includes additional modern topics andprocedures, more practical data sets, and new problems fromreal-life situations. The book continues to emphasize theimportance of nonparametric methods as a significant branch ofmodern statistics and equips readers with the conceptual andtechnical skills necessary to select and apply the appropriateprocedures for any given situation. Written by leading statisticians, Nonparametric StatisticalMethods, Third Edition provides readers with crucialnonparametric techniques in a variety of settings, emphasizing theassumptions underlying the methods. The book provides an extensivearray of examples that clearly illustrate how to use nonparametricapproaches for handling one- or two-sample location and dispersionproblems, dichotomous data, and one-way and two-way layoutproblems. In addition, the Third Edition features: The use of the freely available R software to aid incomputation and simulation, including many new R programs writtenexplicitly for this new edition New chapters that address density estimation, wavelets,smoothing, ranked set sampling, and Bayesian nonparametrics Problems that illustrate examples from agricultural science,astronomy, biology, criminology, education, engineering,environmental science, geology, home economics, medicine,oceanography, physics, psychology, sociology, and spacescience Nonparametric Statistical Methods, Third Edition is anexcellent reference for applied statisticians and practitioners whoseek a review of nonparametric methods and their relevantapplications. The book is also an ideal textbook forupper-undergraduate and first-year graduate courses in appliednonparametric statistics.

Handbook of Parametric and Nonparametric Statistical Procedures - David J. Sheskin 2003-08-27 Called the "bible of applied statistics," the first two editions of the Handbook of Parametric and Nonparametric Statistical Procedures were unsurpassed in accessibility, practicality, and scope. Now author David Sheskin has gone several steps further and added even more tests, more examples, and more background information-more than 200 pages of n

Statistical Methods in Spatial Epidemiology - Andrew B. Lawson 2013-07-08 Spatial epidemiology is the description and analysis of the geographical distribution of disease. It is more important now than ever, with modern threats such as bio-terrorism making such analysis even more complex. This second edition of Statistical Methods in Spatial Epidemiology is updated and expanded to offer a complete coverage of the analysis and application of spatial statistical methods. The book is divided into two main sections: Part 1 introduces basic definitions and terminology, along with map construction and some basic models. This is expanded upon in Part II by applying this knowledge to the fundamental problems within spatial epidemiology, such as disease mapping, ecological analysis, disease clustering, bio-terrorism, space-time analysis, surveillance and infectious disease modelling. Provides a comprehensive overview of the main statistical methods used in spatial epidemiology. Updated to include a new emphasis on bio-terrorism and disease surveillance. Emphasizes the importance of space-time modelling and outlines the practical application of the method. Discusses the wide range of software available for analyzing spatial data, including WinBUGS, SaTScan and R, and features an accompanying website hosting related software. Contains numerous data sets, each representing a different approach to

the analysis, and provides an insight into various modelling techniques. This text is primarily aimed at medical statisticians, researchers and practitioners from public health and epidemiology. It is also suitable for postgraduate students of statistics and epidemiology, as well professionals working in government agencies.

Simulation - James R. Thompson 2009-09-25 A unique, integrated treatment of computer modeling and simulation "The future of science belongs to those willing to make the shift to simulation-based modeling," predicts Rice Professor James Thompson, a leading modeler and computational statistician widely known for his original ideas and engaging style. He discusses methods, available to anyone with a fast desktop computer, for integrating simulation into the modeling process in order to create meaningful models of real phenomena. Drawing from a wealth of experience, he gives examples from trading markets, oncology, epidemiology, statistical process control, physics, public policy, combat, real-world optimization, Bayesian analyses, and population dynamics. Dr. Thompson believes that, so far from liberating us from the necessity of modeling, the fast computer enables us to engage in realistic models of processes in , for example, economics, which have not been possible earlier because simple stochastic models in the forward temporal direction generally become quite unmanageably complex when one is looking for such things as likelihoods. Thompson shows how simulation may be used to bypass the necessity of obtaining likelihood functions or moment-generating functions as a precursor to parameter estimation. Simulation: A Modeler's Approach is a provocative and practical guide for professionals in applied statistics as well as engineers, scientists, computer scientists, financial analysts, and anyone with an interest in the synergy between data, models, and the digital computer.

Handbook of Parametric and Nonparametric Statistical Procedures, Fifth Edition - David J. Sheskin 2020-06-09 Following in the footsteps of its bestselling predecessors, the Handbook of Parametric and Nonparametric Statistical Procedures, Fifth Edition provides researchers, teachers, and students with an all-inclusive reference on univariate, bivariate, and multivariate statistical procedures.New in the Fifth Edition:Substantial updates and new material th

An Introduction to Statistical Methods and Data Analysis - R. Lyman Ott 2008-12-30 Ott and Longnecker's AN INTRODUCTION TO STATISTICAL METHODS AND DATA ANALYSIS, Sixth Edition, provides a broad overview of statistical methods for advanced undergraduate and graduate students from a variety of disciplines who have little or no prior course work in statistics. The authors teach students to solve problems encountered in research projects, to make decisions based on data in general settings both within and beyond the university setting, and to become critical readers of statistical analyses in research papers and in news reports. The first eleven chapters present material typically covered in an introductory statistics course, as well as case studies and examples that are often encountered in undergraduate capstone courses. The remaining chapters cover regression modeling and design of experiments. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Modern Mathematical Statistics with Applications - Jay L. Devore 2011-12-07 Modern Mathematical Statistics with Applications, Second Edition strikes a balance between mathematical foundations and statistical

practice. In keeping with the recommendation that every math student should study statistics and probability with an emphasis on data analysis, accomplished authors Jay Devore and Kenneth Berk make statistical concepts and methods clear and relevant through careful explanations and a broad range of applications involving real data. The main focus of the book is on presenting and illustrating methods of inferential statistics that are useful in research. It begins with a chapter on descriptive statistics that immediately exposes the reader to real data. The next six chapters develop the probability material that bridges the gap between descriptive and inferential statistics. Point estimation, inferences based on statistical intervals, and hypothesis testing are then introduced in the next three chapters. The remainder of the book explores the use of this methodology in a variety of more complex settings. This edition includes a plethora of new exercises, a number of which are similar to what would be encountered on the actuarial exams that cover probability and statistics. Representative applications include investigating whether the average tip percentage in a particular restaurant exceeds the standard 15%, considering whether the flavor and aroma of Champagne are affected by bottle temperature or type of pour, modeling the relationship between college graduation rate and average SAT score, and assessing the likelihood of O-ring failure in space shuttle launches as related to launch temperature.

Applied Statistics and Probability for Engineers - Douglas C. Montgomery 2010-03-22
Montgomery and Runger's bestselling engineering statistics text provides a practical approach oriented to engineering as well as chemical and physical sciences. By providing unique problem sets that reflect realistic situations, students learn how the material will be relevant in their careers. With a focus on how statistical tools are integrated into the engineering problem-solving process, all major aspects of engineering statistics are covered. Developed with sponsorship from the National Science Foundation, this text incorporates many insights from the authors' teaching experience along with feedback from numerous adopters of previous editions.

Statistical Modeling by Wavelets - Brani Vidakovic 2009-09-25
A comprehensive, step-by-step introduction to wavelets in statistics. What are wavelets? What makes them increasingly indispensable in statistical nonparametrics? Why are they suitable for "time-scale" applications? How are they used to solve such problems as denoising, regression, or density estimation? Where can one find up-to-date information on these newly "discovered" mathematical objects? These are some of the questions Brani Vidakovic answers in Statistical Modeling by Wavelets. Providing a much-needed introduction to the latest tools afforded statisticians by wavelet theory, Vidakovic compiles, organizes, and explains in depth research data previously available only in disparate journal articles. He carefully balances both statistical and mathematical techniques, supplementing the material with a wealth of examples, more than 100 illustrations, and extensive references-with data sets and S-Plus wavelet overviews made available for downloading over the Internet. Both introductory and data-oriented modeling topics are featured, including: * Continuous and discrete wavelet transformations. * Statistical optimality properties of wavelet shrinkage. * Theoretical aspects of wavelet density estimation. * Bayesian modeling in the wavelet domain. * Properties of wavelet-based random functions and densities. * Several novel and important wavelet applications in statistics. * Wavelet methods in time series. Accessible to anyone with a background in advanced calculus and algebra, Statistical Modeling by Wavelets promises to become the standard reference for statisticians and engineers seeking a comprehensive introduction to an emerging field.

Nonparametric Statistics for Non-Statisticians - Gregory W. Corder 2011-09-20
A practical and understandable approach to nonparametric statistics for researchers across diverse areas of study As the importance of nonparametric methods in modern statistics continues to grow, these techniques are being increasingly applied to experimental designs across various fields of study. However, researchers are not always properly equipped with the knowledge to correctly apply these methods. Nonparametric Statistics for Non-Statisticians: A Step-by-Step Approach fills a void in the current literature by addressing nonparametric statistics in a manner that is easily accessible for readers with a background in the social, behavioral, biological, and physical sciences. Each chapter follows the same comprehensive format, beginning with a general introduction to the particular topic and a list of main learning objectives. A nonparametric procedure is then presented and accompanied by context-based examples that are outlined in a step-by-

step fashion. Next, SPSS® screen captures are used to demonstrate how to perform and recognize the steps in the various procedures. Finally, the authors identify and briefly describe actual examples of corresponding nonparametric tests from diverse fields. Using this organized structure, the book outlines essential skills for the application of nonparametric statistical methods, including how to: Test data for normality and randomness Use the Wilcoxon signed rank test to compare two related samples Apply the Mann-Whitney U test to compare two unrelated samples Compare more than two related samples using the Friedman test Employ the Kruskal-Wallis H test to compare more than two unrelated samples Compare variables of ordinal or dichotomous scales Test for nominal scale data A detailed appendix provides guidance on inputting and analyzing the presented data using SPSS®, and supplemental tables of critical values are provided. In addition, the book's FTP site houses supplemental data sets and solutions for further practice. Extensively classroom tested, Nonparametric Statistics for Non-Statisticians is an ideal book for courses on nonparametric statistics at the upper-undergraduate and graduate levels. It is also an excellent reference for professionals and researchers in the social, behavioral, and health sciences who seek a review of nonparametric methods and relevant applications.

Analysis of Health Surveys - Edward L. Korn 2011-01-25
How to apply statistical methods to survey data--a guide toeffective analysis of health surveys. With large health surveys becoming increasingly available forpublic use, researchers with little experience in survey methodsare often faced with analyzing data from surveys to addressscientific and programmatic questions. This practical book providesstatistical techniques for use in survey analysis, making healthsurveys accessible to statisticians, biostatisticians,epidemiologists, and health researchers. The authors clearlyexplain the theory and methods of survey analysis along withreal-world applications. They draw on their work at the NationalInstitutes of Health as well as up-to-date information from acrossthe literature to present: * The sampling background necessary to understand health surveys. * The application of such techniques as t-tests, linear regression,logistic regression, and survival analysis to survey data. * The use of sample weights in survey data analysis. * Dealing with complications in variance estimation in large healthsurveys. * Applications involving cross-sectional, longitudinal, andmultiple cross-sectional surveys, and the use of surveys to performpopulation- based case-control analyses. * Guidance on the correct use of statistical methods found insoftware packages. * Extensive bibliography.

An Introduction to Modern Nonparametric Statistics - James J. Higgins 2004
Guided by problems that frequently arise in actual practice, James Higgins' book presents a wide array of nonparametric methods of data analysis that researchers will find useful. It discusses a variety of nonparametric methods and, wherever possible, stresses the connection between methods. For instance, rank tests are introduced as special cases of permutation tests applied to ranks. The author provides coverage of topics not often found in nonparametric textbooks, including procedures for multivariate data, multiple regression, multi-factor analysis of variance, survival data, and curve smoothing. This truly modern approach teaches non-majors how to analyze and interpret data with nonparametric procedures using today's computing technology.

Encyclopedia of Measurement and Statistics - Neil J. Salkind 2007
Publisher Description

Applied Nonparametric Statistical Methods - Peter Sprent 2012-12-06
This book is a practical introduction to statistical techniques called nonpara metric methods. Using examples, we explain assumptions and demonstrate procedures; theory is kept to a minimum. We show how basic problems are tackled and try to clear up common misapprehensions so as to help both students of statistics meeting the methods for the first time and workers in other fields faced with data needing simple but informative analysis. An analogy between experimenters and car drivers describes our aim. Statistical analyses may be done by following a set of rules without understanding their logical basis, but this has dangers. It is like driving a car with no inkling ofhow the internal combustion engine, the gears, the ignition system, the brakes actually work. Understanding the rudiments helps one get better performance and makesdrivingsafer;appropriate gearchanges become a way to reduce engine stress, prolong engine life, improve fuel economy, minimize wear on brake linings. Knowing how to change the engine oil or replace worn sparking plugs is notessential for adriver, but it will reduce

costs. Learning such basics will not make one a fully fledged mechanic, even less an automotive engineer; but it all contributes to more economical and safer driving, alertingone to the dangers ofbald tyres, aleakingexhaust, worn brake linings.

Statistical Methods for Environmental Pollution Monitoring - Richard O. Gilbert 1987-02-15
This book discusses a broad range of statistical design and analysis methods that are particularly well suited to pollution data. It explains key statistical techniques in easy-to-comprehend terms and uses practical examples, exercises, and case studies to illustrate procedures. Dr. Gilbert begins by discussing a space-time framework for sampling pollutants. He then shows how to use statistical sample survey methods to estimate average and total amounts of pollutants in the environment, and how to determine the number of field samples and measurements to collect for this purpose. Then a broad range of statistical analysis methods are described and illustrated. These include: * determining the number of samples needed to find hot spots * analyzing pollution data that are lognormally distributed * testing for trends over time or space * estimating the magnitude of trends * comparing pollution data from two or more populations New areas discussed in this sourcebook include statistical techniques for data that are correlated, reported as less than the measurement detection limit, or obtained from field-composited samples. Nonparametric statistical analysis methods are emphasized since parametric procedures are often not appropriate for pollution data. This book also provides an illustrated comprehensive computer code for nonparametric trend detection and estimation analyses as well as nineteen statistical tables to permit easy application of the discussed statistical techniques. In addition, many publications are cited that deal with the design of pollution studies and the statistical analysis of pollution data. This sourcebook will be a useful tool for applied statisticians, ecologists, radioecologists, hydrologists, biologists, environmental engineers, and other professionals who deal with the collection, analysis, and interpretation of pollution in air, water, and soil.

Nonparametric Statistics with Applications to Science and Engineering - Paul H. Kvam 2007-08-24
A thorough and definitive book that fully addresses traditional and modern-day topics of nonparametric statistics This book presents a practical approach to nonparametric statistical analysis and provides comprehensive coverage of both established and newly developed methods. With the use of MATLAB, the authors present information on theorems and rank tests in an applied fashion, with an emphasis on modern methods in regression and curve fitting, bootstrap confidence intervals, splines, wavelets, empirical likelihood, and goodness-of-fit testing. Nonparametric Statistics with Applications to Science and Engineering begins with succinct coverage of basic results for order statistics, methods of categorical data analysis, nonparametric regression, and curve fitting methods. The authors then focus on nonparametric procedures that are becoming more relevant to engineering researchers and practitioners. The important fundamental materials needed to effectively learn and apply the discussed methods are also provided throughout the book. Complete with exercise sets, chapter reviews, and a related Web site that features downloadable MATLAB applications, this book is an essential textbook for graduate courses in engineering and the physical sciences and also serves as a valuable reference for researchers who seek a more comprehensive understanding of modern nonparametric statistical methods.

All of Nonparametric Statistics - Larry Wasserman 2006-09-10
This text provides the reader with a single book where they can find accounts of a number of up-to-date issues in nonparametric inference. The book is aimed at Masters or PhD level students in statistics, computer science, and engineering. It is also suitable for researchers who want to get up to speed quickly on modern nonparametric methods. It covers a wide range of topics including the bootstrap, the nonparametric delta method, nonparametric regression, density estimation, orthogonal function methods, minimax estimation, nonparametric confidence sets, and wavelets. The book's dual approach includes a mixture of methodology and theory.

Statistical Inference for Fractional Diffusion Processes - B. L. S. Prakasa Rao 2011-07-05
Stochastic processes are widely used for model building in the social, physical, engineering and life sciences as well as in financial economics. In model building, statistical inference for stochastic processes is of great importance from both a theoretical and an applications point of view. This book deals with Fractional Diffusion Processes and statistical inference for such stochastic processes. The main focus of the book is to consider parametric and nonparametric inference problems for fractional diffusion processes when a complete path of the process over a finite interval is observable. Key features: Introduces self-similar processes, fractional Brownian motion and stochastic integration with respect to fractional Brownian motion. Provides a comprehensive review of statistical inference for processes driven by fractional Brownian motion for modelling long range dependence. Presents a study of parametric and nonparametric inference problems for the fractional diffusion process. Discusses the fractional Brownian sheet and infinite dimensional fractional Brownian motion. Includes recent results and developments in the area of statistical inference of fractional diffusion processes. Researchers and students working on the statistics of fractional diffusion processes and applied mathematicians and statisticians involved in stochastic process modelling will benefit from this book.

Planning, Construction, and Statistical Analysis of Comparative Experiments - Francis G. Giesbrecht 2004-04-01
A valuable guide to conducting experiments and analyzing data across a wide range of applications Experimental design is an important component of the scientific method. This book provides guidance on planning efficient investigations. It compiles designs for a wide range of experimental situations not previously found in accessible form. Focusing on applications in the physical, engineering, biological, and social sciences, Planning, Construction, and Statistical Analysis of Comparative Experiments is a valuable guide to designing experiments and correctly analyzing and interpreting the results. The authors draw on their years of experience in the classroom and as statistical consultants to research programs on campus, in government, and in industry. The object is always to strike the right balance between mathematical necessities and practical constraints. Serving both as a textbook for students of intermediate statistics and a hands-on reference for active researchers, the text includes: A wide range of applications, including agricultural sciences, animal and biomedical sciences, and industrial engineering studies General formulas for estimation and hypothesis testing, presented in a unified and simplified manner Guidelines for evaluating the power and efficiency of designs that are not perfectly balanced New developments in the design of fractional factorials with non-prime numbers of levels in mixed-level fractional factorials Detailed coverage on the construction of plans and the relationship among categories of designs Thorough coverage of balanced, lattice, cyclic, and alpha designs Strategies for sequences of fractional factorials Data sets and SAS® code on a companion web site An ideal handbook for the investigator planning a research program, the text comes complete with detailed plans of experiments and alternative approaches for added flexibility.

Nonparametric Analysis of Univariate Heavy-Tailed Data - Natalia Markovich 2008-03-11
Heavy-tailed distributions are typical for phenomena in complex multi-component systems such as biometry, economics, ecological systems, sociology, web access statistics, internet traffic, biblio-metrics, finance and business. The analysis of such distributions requires special methods of estimation due to their specific features. These are not only the slow decay to zero of the tail, but also the violation of Cramer's condition, possible non-existence of some moments, and sparse observations in the tail of the distribution. The book focuses on the methods of statistical analysis of heavy-tailed independent identically distributed random variables by empirical samples of moderate sizes. It provides a detailed survey of classical results and recent developments in the theory of nonparametric estimation of the probability density function, the tail index, the hazard rate and the renewal function. Both asymptotical results, for example convergence rates of the estimates, and results for the samples of moderate sizes supported by Monte-Carlo investigation, are considered. The text is illustrated by the application of the considered methodologies to real data of web traffic measurements.

Selected Works of E. L. Lehmann - Javier Rojo 2012-01-14
These volumes present a selection of Erich L. Lehmann's monumental contributions to Statistics. These works are multifaceted. His early work included fundamental contributions to hypothesis testing, theory of point estimation, and more generally to decision theory. His work in Nonparametric Statistics was groundbreaking. His fundamental contributions in this area include results that came to assuage the anxiety of statisticians that were skeptical of nonparametric methodologies, and his work on concepts of dependence has created a large literature. The two volumes are divided into chapters of related works. Invited contributors have critiqued the papers in each chapter, and the reprinted group of papers follows each commentary. A complete bibliography that contains links to recorded talks by Erich Lehmann –

and which are freely accessible to the public – and a list of Ph.D. students are also included. These volumes belong in every statistician's personal collection and are a required holding for any institutional library.

Statistical Methods in Water Resources - D.R. Helsel 1993-03-03
Data on water quality and other environmental issues are being collected at an ever-increasing rate. In the past, however, the techniques used by scientists to interpret this data have not progressed as quickly. This is a book of modern statistical methods for analysis of practical problems in water quality and water resources. The last fifteen years have seen major advances in the fields of exploratory data analysis (EDA) and robust statistical methods. The 'real-life' characteristics of environmental data tend to drive analysis towards the use of these methods. These advances are presented in a practical and relevant format. Alternate methods are compared, highlighting the strengths and weaknesses of each as applied to environmental data. Techniques for trend analysis and dealing with water below the detection limit are topics covered, which are of great interest to consultants in water-quality and hydrology, scientists in state, provincial and federal water resources, and geological survey agencies. The practising water resources scientist will find the worked examples using actual field data from case studies of environmental problems, of real value. Exercises at the end of each chapter enable the mechanics of the methodological process to be fully understood, with data sets included on diskette for easy use. The result is a book that is both up-to-date and immediately relevant to ongoing work in the environmental and water sciences.

Statistical Analysis of Designed Experiments - Ajit C. Tamhane 2009-04-06
A indispensable guide to understanding and designing modern experiments The tools and techniques of Design of Experiments (DOE) allow researchers to successfully collect, analyze, and interpret data across a wide array of disciplines. Statistical Analysis of Designed Experiments provides a modern and balanced treatment of DOE methodology with thorough coverage of the underlying theory and standard designs of experiments, guiding the reader through applications to research in various fields such as engineering, medicine, business, and the social sciences. The book supplies a foundation for the subject, beginning with basic concepts of DOE and a review of elementary normal theory statistical methods. Subsequent chapters present a uniform, model-based approach to DOE. Each design is presented in a comprehensive format and is accompanied by a motivating example, discussion of the applicability of the design, and a model for its analysis using statistical methods such as graphical plots, analysis of variance (ANOVA), confidence intervals, and hypothesis tests. Numerous theoretical and applied exercises are provided in each chapter, and answers to selected exercises are included at the end of the book. An appendix features three case studies that illustrate the challenges often encountered in real-world experiments, such as randomization, unbalanced data, and outliers. Minitab® software is used to perform analyses throughout the book, and an accompanying FTP site houses additional exercises and data sets. With its breadth of real-world examples and accessible treatment of both theory and applications, Statistical Analysis of Designed Experiments is a valuable book for experimental design courses at the upper-undergraduate and graduate levels. It is also an indispensable reference for practicing statisticians, engineers, and scientists who would like to further their knowledge of DOE.

Nonparametric Statistical Methods Using R - John Kloke 2014-10-09
A Practical Guide to Implementing Nonparametric and Rank-Based Procedures Nonparametric Statistical Methods Using R covers traditional nonparametric methods and rank-based analyses, including estimation and inference for models ranging from simple location models to general linear and nonlinear models for uncorrelated and correlated responses. The authors emphasize applications and statistical computation. They illustrate the methods with many real and simulated data examples using R, including the packages Rfit and npsm. The book first gives an overview of the R language and basic statistical concepts before discussing nonparametrics. It presents rank-based methods for one- and two-sample problems, procedures for regression models, computation for general fixed-effects ANOVA and ANCOVA models, and time-to-event analyses. The last two chapters cover more advanced material, including high breakdown fits for general regression models and rank-based inference for cluster correlated data. The book can be used as a primary text or supplement in a course on applied nonparametric or robust procedures and as a reference for researchers who need to implement nonparametric and rank-based methods in

practice. Through numerous examples, it shows readers how to apply these methods using R.

Statistical Methods in Diagnostic Medicine - Xiao-Hua Zhou 2009-09-25
An important role of diagnostic medicine research is to estimate and compare the accuracies of diagnostic tests. This book provides a comprehensive account of statistical methods for design and analysis of diagnostic studies, including sample size calculations, estimation of the accuracy of a diagnostic test, comparison of accuracies of competing diagnostic tests, and regression analysis of diagnostic accuracy data. Discussing recently developed methods for correction of verification bias and imperfect reference bias, methods for analysis of clustered diagnostic accuracy data, and meta-analysis methods, Statistical Methods in Diagnostic Medicine explains: * Common measures of diagnostic accuracy and designs for diagnostic accuracy studies * Methods of estimation and hypothesis testing of the accuracy of diagnostic tests * Meta-analysis * Advanced analytic techniques-including methods for comparing correlated ROC curves in multi-reader studies, correcting verification bias, and correcting when an imperfect gold standard is used Thoroughly detailed with numerous applications and end-of-chapter problems as well as a related FTP site providing FORTRAN program listings, data sets, and instructional hints, Statistical Methods in Diagnostic Medicine is a valuable addition to the literature of the field, serving as a much-needed guide for both clinicians and advanced students.

The Statistical Analysis of Failure Time Data - John D. Kalbfleisch 2002-09-09
* Contains additional discussion and examples on left truncation as well as material on more general censoring and truncation patterns. * Introduces the martingale and counting process formulation swil lbe in a new chapter. * Develops multivariate failure time data in a separate chapter and extends the material on Markov and semi Markov formulations. * Presents new examples and applications of data analysis.

Methods and Applications of Linear Models - Ronald R. Hocking 2005-02-04
A popular statistical text now updated and better than ever! The ready availability of high-speed computers and statistical software encourages the analysis of ever larger and more complex problems while at the same time increasing the likelihood of improper usage. That is why it is increasingly important to educate end users in the correct interpretation of the methodologies involved. Now in its second edition, Methods and Applications of Linear Models: Regression and the Analysis of Variance seeks to more effectively address the analysis of such models through several important changes. Notable in this new edition: Fully updated and expanded text reflects the most recent developments in the AVE method Rearranged and reorganized discussions of application and theory enhance text's effectiveness as a teaching tool More than 100 new exercises in the areas of regression and analysis of variance As in the First Edition, the author presents a thorough treatment of the concepts and methods of linear model analysis, and illustrates them with various numerical and conceptual examples, using a data-based approach to development and analysis. Data sets, available on an FTP site, allow readers to apply analytical methods discussed in the book.

Analysis of Financial Time Series - Ruey S. Tsay 2010-08-30
This book provides a broad, mature, and systematic introduction to current financial econometric models and their applications to modeling and prediction of financial time series data. It utilizes real-world examples and real financial data throughout the book to apply the models and methods described. The author begins with basic characteristics of financial time series data before covering three main topics: Analysis and application of univariate financial time series The return series of multiple assets Bayesian inference in finance methods Key features of the new edition include additional coverage of modern day topics such as arbitrage, pair trading, realized volatility, and credit risk modeling; a smooth transition from S-Plus to R; and expanded empirical financial data sets. The overall objective of the book is to provide some knowledge of financial time series, introduce some statistical tools useful for analyzing these series and gain experience in financial applications of various econometric methods.

Statistical Methods for Rates and Proportions - Joseph L. Fleiss 2013-06-12
* Includes a new chapter on logistic regression. * Discusses the design and analysis of random trials. * Explores the latest applications of sample size tables. * Contains a new section on binomial distribution.

Robust Nonparametric Statistical Methods - Thomas P. Hettmansperger 1998

Offering an alternative to traditional statistical procedures which are based on least squares fitting, the authors cover such topics as one and two sample location models, linear models, and multivariate models. Both theory and applications are examined.

Nonparametric Statistics - Gregory W. Corder 2014-04-14
"…a very useful resource for courses innonparametric statistics in which the emphasis is on applicationsrather than on theory. It also deserves a place in librariesof all institutions where introductory statistics courses aretaught." –CHOICE This Second Edition presents a practical andunderstandable approach that enhances and expands the statisticaltoolset for readers. This book includes: New coverage of the sign test and the Kolmogorov-Smirnovtwo-sample test in an effort to offer a logical and naturalprogression to statistical power SPSS® (Version 21) software and updated screen captures todemonstrate how to perform and recognize the steps in the variousprocedures Data sets and odd-numbered solutions provided in an appendix,and tables of critical values Supplementary material to aid in reader comprehension, whichincludes: narrated videos and screen animations with step-by-stepinstructions on how to follow the tests using SPSS; online decisiontrees to help users determine the needed type of statistical test;and additional solutions not found within the book.

Statistical Methods for Forecasting - Bovas Abraham 2009-09-25
The Wiley-Interscience Paperback Series consists of selected books that have been made more accessible to consumers in an effort to increase global appeal and general circulation. With these new unabridged softcover volumes, Wiley hopes to extend the lives of these works by making them available to future generations of statisticians, mathematicians, and scientists. "This book, it must be said, lives up to the words on its advertising cover: 'Bridging the gap between introductory, descriptive approaches and highly advanced theoretical treatises, it provides a practical, intermediate level discussion of a variety of forecasting tools, and explains how they relate to one another, both in theory and practice.' It does just that!" -Journal of the Royal Statistical Society "A well-written work that deals with statistical methods and models that can be used to produce short-term forecasts, this book has wide-ranging applications. It could be used in the context of a study of regression, forecasting, and time series analysis by PhD students; or to support a concentration in quantitative methods for MBA students; or as a work in applied statistics for advanced undergraduates." -Choice Statistical Methods for Forecasting is a comprehensive, readable treatment of statistical methods and models used to produce short-term forecasts. The interconnections between the forecasting models and methods are thoroughly explained, and the gap between theory and practice is successfully bridged. Special topics are discussed, such as transfer function modeling; Kalman filtering; state space models; Bayesian forecasting; and methods for forecast evaluation, comparison, and control. The book provides time series, autocorrelation, and partial autocorrelation plots, as well as examples and exercises using real data. Statistical Methods for Forecasting serves as an outstanding textbook for advanced undergraduate and graduate courses in statistics, business, engineering, and the social sciences, as well as a working reference for professionals in business, industry, and government.

Handbook of Parametric and Nonparametric Statistical Procedures David J. Sheskin 2000-02-24
Called the "bible of applied statistics," the first edition of the bestselling Handbook of Parametric and Nonparametric Statistical Procedures was unsurpassed in its scope. The Second Edition goes even further - more tests, more examples, more than 250 pages of new material. Thorough - Up-To-Date With details of more than 100 statistical procedures, the Handbook offers unparalleled coverage of modern statistical methods. You get in-depth discussion of both practical and theoretical issues, many of which are not addressed in conventional statistics books. Practical - User-Friendly Accessible to novices but valuable to seasoned researchers, the Handbook emphasizes application over theory and presents the procedures in a standardized format that makes it easy to access the information you need. If you have to Ø Decide what method of analysis to use Ø Use a particular test for the first time Ø Distinguish acceptable from unacceptable research Ø Interpret the results of published studies the Handbook of Parametric and Nonparametric Statistical Procedures has the background, the answers, and the guidelines to get the job done.

Applied Nonparametric Statistics - Wayne W. Daniel 1990
This book covers the most commonly used nonparametric statistical techniques by emphasizing applications rather than theory. Exercises and examples are drawn from various disciplines including agriculture,

biology, sociology, education, psychology, medicine, business, geology, and anthropology. The applications of techniques are presented in a step-by-step format that is repeated for all illustrative examples. Concepts are reinforced with many references to statistical literature to show the relevance to real-world problems. Chapters contain references of available computer programs and software packages that apply to methods presented in the book.

Nonparametric Statistical Methods, Solutions Manual - Myles Hollander 1999-03-25
The importance of nonparametric methods in modern statistics has grown dramatically since their inception in the mid-1930s. Requiring few or no assumptions about the populations from which data are obtained, they have emerged as the preferred methodology among statisticians and researchers performing data analysis. Today, these highly efficient techniques are being applied to an ever-widening variety of experimental designs in the social, behavioral, biological, and physical sciences. This long-awaited Second Edition of Myles Hollander and Douglas A. Wolfe's successful Nonparametric Statistical Methods meets the needs of a new generation of users, with completely up-to-date coverage of this important statistical area. Like its highly acclaimed predecessor, the revised edition, along with its companion ftp site, aims to equip students with the conceptual and technical skills necessary to select and apply the appropriate procedures for a given situation. An extensive array of examples drawn from actual experiments illustrates clearly how to use nonparametric approaches to handle one- or two-sample location and dispersion problems, dichotomous data, and one-way and two-way layout problems. Rewritten and updated, this Second Edition now includes new or expanded coverage of: * Nonparametric regression methods. * The bootstrap. * Contingency tables and the odds ratio. * Life distributions and survival analysis. * Nonparametric methods for experimental designs. * More procedures, real-world data sets, and problems. * Illustrated examples using Minitab and StatXact. An ideal text for an upper-level undergraduate or first-year graduate course, this text is also an invaluable source for professionals who want to keep abreast of the latest developments within this dynamic branch of modern statistics. An Instructor's Manual presenting detailed solutions to all the problems in the book is available upon request from the Wiley editorial department.

Nonparametric Statistical Methods For Complete and Censored Data - M.M. Desu 2003-09-29
Balancing the "cookbook" approach of some texts with the more mathematical approach of others, Nonparametric Statistical Methods for Complete and Censored Data introduces commonly used non-parametric methods for complete data and extends those methods to right censored data analysis. Whenever possible, the authors derive their methodology from the general theory of statistical inference and introduce the concepts intuitively for students with minimal backgrounds. Derivations and mathematical details are relegated to appendices at the end of each chapter, which allows students to easily proceed through each chapter without becoming bogged down in a lot of mathematics. In addition to the nonparametric methods for analyzing complete and censored data, the book covers optimal linear rank statistics, clinical equivalence, analysis of block designs, and precedence tests. To make the material more accessible and practical, the authors use SAS programs to illustrate the various methods included. Exercises in each chapter, SAS code, and a clear, accessible presentation make this an outstanding text for a one-semester senior or graduate-level course in nonparametric statistics for students in a variety of disciplines, from statistics and biostatistics to business, psychology, and the social scientists. Prerequisites: Students will need a solid background in calculus and a two-semester course in mathematical statistics.

Fractional Factorial Plans - Aloke Dey 2009-09-25
A one-stop reference to fractional factorials and related orthogonal arrays. Presenting one of the most dynamic areas of statistical research, this book offers a systematic, rigorous, and up-to-date treatment of fractional factorial designs and related combinatorial mathematics. Leading statisticians Aloke Dey and Rahul Mukerjee consolidate vast amounts of material from the professional literature--expertly weaving fractional replication, orthogonal arrays, and optimality aspects. They develop the basic theory of fractional factorials using the calculus of factorial arrangements, thereby providing a unified approach to the study of fractional factorial plans. An indispensable guide for statisticians in research and industry as well as for graduate students, Fractional Factorial Plans features: * Construction procedures of symmetric and asymmetric orthogonal arrays. * Many up-to-date research results on nonexistence. * A chapter on optimal fractional factorials not based on

orthogonal arrays. * Trend-free plans, minimum aberration plans, and search and supersaturated designs. * Numerous examples and extensive references.

Statistical Models and Methods for Lifetime Data - Jerald F. Lawless 2011-01-25
Praise for the First Edition "An indispensable addition to any serious collection on lifetimedata analysis and . . . a valuable contribution to the statisticalliterature. Highly recommended . . ." -Choice "This is an important book, which will appeal to statisticiansworking on survival analysis problems." -Biometrics "A thorough, unified treatment of statistical models and methodsused in the analysis of lifetime data . . . this is a highlycompetent and agreeable statistical textbook." -Statistics in Medicine The statistical analysis of lifetime or response time data is a keytool in engineering, medicine, and many other scientific andtechnological areas. This book provides a unified treatment of themodels and statistical methods used to analyze lifetime data. Equally useful as a reference for individuals interested in theanalysis of lifetime data and as a text for advanced students,Statistical Models and Methods for Lifetime Data, Second Editionprovides broad coverage of the area without concentrating on anysingle field of application. Extensive illustrations and examplesdrawn from engineering and the biomedical sciences provide readerswith a clear understanding of key concepts. New and expanded coverage in this edition includes: * Observation schemes for lifetime data * Multiple failure modes * Counting process-martingale tools * Both special lifetime data and general optimizationsoftware * Mixture models * Treatment of interval-censored and truncated data * Multivariate lifetimes and event history models * Resampling and simulation methodology

Nonparametric Statistical Methods Using R - John Kloke 2014-10-09
A Practical Guide to Implementing Nonparametric and Rank-Based Procedures Nonparametric Statistical Methods Using R covers traditional nonparametric methods and rank-based analyses, including estimation and inference for models ranging from simple location models to general linear and nonlinear models for uncorrelated and correlated responses. The authors emphasize applications and statistical computation. They illustrate the methods with many real and simulated data examples using R, including the packages Rfit and npsm. The book first gives an overview of the R language and basic statistical concepts before discussing nonparametrics. It presents rank-based methods for one- and two-sample problems, procedures for regression models, computation for general fixed-effects ANOVA and ANCOVA models, and time-to-event analyses. The last two chapters cover more advanced material, including high breakdown fits for general regression models and rank-based inference for cluster correlated data. The book can be used as a primary text or supplement in a course on applied nonparametric or robust procedures and as a reference for researchers who need to implement nonparametric and rank-based methods in practice. Through numerous examples, it shows readers how to apply these methods using R.

Statistical Methods for Quality Improvement - Thomas P. Ryan 2011-09-20
Praise for the Second Edition "As a comprehensive statistics reference book for quality improvement, it certainly is one of the best books available." —Technometrics This new edition continues to provide the most current, proven statistical methods for quality control and quality improvement The use of quantitative methods offers numerous benefits in the fields of industry and business, both through identifying existing trouble spots and alerting management and technical personnel to potential problems. Statistical Methods for Quality Improvement, Third Edition guides readers through a broad range of tools and techniques that make it possible to quickly identify and resolve both current and potential trouble spots within almost any manufacturing or nonmanufacturing process. The book provides detailed coverage of the application of control charts, while also exploring critical topics such as regression, design of experiments, and Taguchi methods. In this new edition, the author continues to explain how to combine the many statistical methods explored in the book in order to optimize quality control and improvement. The book has been thoroughly revised and updated to reflect the latest research and practices in statistical methods and quality control, and new features include: Updated coverage of control charts, with newly added tools The latest research on the monitoring of linear profiles and other types of profiles Sections on generalized likelihood ratio charts and the effects of parameter estimation on the properties of CUSUM and EWMA procedures New discussions on design of experiments that include conditional effects and fraction of design space plots New material on Lean Six Sigma and Six Sigma programs and training Incorporating the latest software applications, the author has added coverage on how to use Minitab software to obtain probability limits for attribute charts. new exercises have been added throughout the book, allowing readers to put the latest statistical methods into practice. Updated references are also provided, shedding light on the current literature and providing resources for further study of the topic. Statistical Methods for Quality Improvement, Third Edition is an excellent book for courses on quality control and design of experiments at the upper-undergraduate and graduate levels. the book also serves as a valuable reference for practicing statisticians, engineers, and physical scientists interested in statistical quality improvement.