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Introduction to Theory of Nonparametric Statistics Apr 15 2020

An Introduction to Modern Nonparametric Statistics Jun 29 2021 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.

Nonparametric Statistics Jan 17 2023 “...a very useful resource for courses in nonparametric statistics in which the emphasis is on applications rather than on theory. It also deserves a place in libraries of all institutions where introductory statistics courses are taught." –CHOICE This Second Edition presents a practical and understandable approach that enhances and expands the statistical toolset for readers. This book includes: New coverage of the sign test and the Kolmogorov-Smirnov two-sample test in an effort to offer a logical and natural progression to statistical power SPSS® (Version 21) software and updated screen captures to demonstrate how to perform and recognize the steps in the various procedures Data sets and odd-numbered solutions provided in an appendix, and tables of critical values Supplementary material to aid in reader comprehension, which includes: narrated videos and screen animations with step-by-step

instructions on how to follow the tests using SPSS; online decision trees to help users determine the needed type of statistical test; and additional solutions not found within the book.

Recent Advances and Trends in Nonparametric Statistics Sep 20 2020 The advent of high-speed, affordable computers in the last two decades has given a new boost to the nonparametric way of thinking. Classical nonparametric procedures, such as function smoothing, suddenly lost their abstract flavour as they became practically implementable. In addition, many previously unthinkable possibilities became mainstream; prime examples include the bootstrap and resampling methods, wavelets and nonlinear smoothers, graphical methods, data mining, bioinformatics, as well as the more recent algorithmic approaches such as bagging and boosting. This volume is a collection of short articles - most of which having a review component - describing the state-of-the art of Nonparametric Statistics at the beginning of a new millennium. Key features: • algorithic approaches • wavelets and nonlinear smoothers • graphical methods and data mining • biostatistics and bioinformatics • bagging and boosting • support vector machines • resampling methods

Nonparametric Statistics Sep 13 2022 Through the use of actual research investigations that have appeared in recent social science journals, Gibbons shows the reader the specific methodology and logical rationale for many of the best-known and most frequently used nonparametric methods that are applicable to most small and large sample sizes. The methods are organized according to the type of sample structure that produced the data to be analyzed, and the inference types covered are limited to location tests, such as the sign test, the Mann-Whitney-Wilcoxon test, the Kruskal-Wallis test and Friedman's test. The formal introduction of each test is followed by a data example, calculated first by hand and then by computer.

Nonparametric Statistics for the Behavioral Sciences Aug 12 2022 Revision of the classic text in the field, adding two new chapters and thoroughly updating all others. The original structure is retained, and the book continues to serve as a combined text/reference.

Nonparametric Statistics for Non-Statisticians Aug 24 2023 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.

Nonparametric Statistics for Stochastic Processes Oct 14 2022 This book provides a mathematically rigorous treatment of the theory of nonparametric estimation and prediction for stochastic processes. It discusses discrete time and continuous time, and the emphasis is on the kernel methods. Several new results are presented concerning optimal and superoptimal convergence rates. How to implement the method is discussed in detail and several numerical results are presented. This book will be of interest to specialists in mathematical statistics and to those who wish to apply these methods to practical problems involving time series analysis.

Introduction to the Theory of Nonparametric Statistics Aug 20 2020 An intermediate text that provides a basic understanding of concepts and theory, presenting important mathematical statistics tools fundamental to the development of nonparametric statistics. Uses an intuitive approach emphasizing techniques for making a test distribution-free (such as counting and ranking). U-statistics, asymptotic efficiency, the Hodges-Lehmann technique for creating a confidence interval and a point estimator from a test, linear rank statistics, and more. Also includes currently developing areas. Readers are required to be familiar with the basic concepts of statistical inference and have a good knowledge of advanced calculus.

Nonparametric Statistics with Applications to Science and Engineering Apr 08 2022 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.

Nonparametric Statistics for the Behavioral Sciences Sep 01 2021 The use of statistical tests in research; Choosing an appropriate statistical test; The one-sample case; The case of two related samples; The case of two independent samples; The case of k related samples; The case of k independent samples; Measures of correlatin and their tests of significance.

Nonparametric Statistics and Related Topics May 29 2021 Significant developments have taken place during the last thirty years in the field of nonparametric statistics and related topics. These developments and future directions are discussed in this book. Some of the developments focussed on include: robust statistics; rank estimation; bootstrap techniques; regression quantiles; strong approximation of quantile processes; and a preliminary test approach to estimation (combining robust statistics and shrinkage estimation).This volume is dedicated to the memory of Professor Wassily Hoeffding, a pioneer in the field of nonparametric statistics.

All of Nonparametric Statistics Jul 23 2023 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.

A Distribution-Free Theory of Nonparametric Regression Jan 25 2021 This book provides a systematic in-depth analysis of nonparametric regression with random design. It covers almost all known estimates. The emphasis is on distribution-free properties of the estimates.

Nonparametric Tests for Censored Data Nov 03 2021 This book concerns testing hypotheses in non-parametric models. Generalizations of many non-parametric tests to the case of censored and truncated data are considered. Most of the test results are proved and real applications are illustrated using examples. Theories and exercises are provided. The incorrect use of many tests applying most statistical software is highlighted and discussed.

Nonparametric Statistical Methods Feb 18 2023 Praise for the Second Edition "This book should be an essential part of the personal library of every practicing statistician."—Technometrics Thoroughly revised and updated, the new edition of Nonparametric Statistical Methods includes additional modern topics and procedures, more practical data sets, and new problems from real-life situations. The book continues to emphasize the importance of nonparametric methods as a significant branch of modern statistics and equips readers with the conceptual and technical skills necessary to select and apply the appropriate procedures for any given situation. Written by leading statisticians, Nonparametric Statistical Methods, Third Edition provides readers with crucial nonparametric techniques in a variety of settings, emphasizing the assumptions underlying the methods. The book provides an extensive array of examples that clearly illustrate how to use nonparametric approaches for handling one- or two-sample location and dispersion problems, dichotomous data, and one-way and two-way layout problems. In addition, the Third Edition features: The use of the freely available R software to aid in computation and simulation, including many new R programs written explicitly 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 space science Nonparametric Statistical Methods, Third Edition is an excellent reference for applied statisticians and practitioners who seek a review of nonparametric methods and their relevant applications. The book is also an ideal textbook for upper-undergraduate and first-year graduate courses in applied nonparametric statistics.

A Parametric Approach to Nonparametric Statistics Mar 27 2021 This book demonstrates that nonparametric statistics can be taught from a parametric point of view. As a result, one can exploit various parametric tools such as the use of the likelihood function, penalized likelihood and score functions to not only derive well-known tests but to also go beyond and make use of Bayesian methods to analyze ranking data. The book bridges the gap between parametric and nonparametric statistics and presents the best practices of the former while enjoying the robustness properties of the latter. This book can be used in a graduate course in nonparametrics, with parts being accessible to senior undergraduates. In addition, the book will be of wide interest to statisticians and researchers in applied fields.

Nonparametric Statistics for Health Care Research May 09 2022 What do you do when you realize that the data set from the study that you have just completed violates the sample size or other requirements needed to apply parametric statistics? Nonparametric Statistics for Health Care Research by Marjorie A. Pett was developed for such scenarios—research undertaken with limited funds, often using a small sample size, with the primary objective of

improving client care and obtaining better client outcomes. Covering the most commonly used nonparametric statistical techniques available in statistical packages and on open-resource statistical websites, this well-organized and accessible Second Edition helps readers, including those beyond the health sciences field, to understand when to use a particular nonparametric statistic, how to generate and interpret the resulting computer printouts, and how to present the results in table and text format.

Practical Nonparametric Statistics May 21 2023 This highly-regarded text serves as a quick reference book which offers clear, concise instructions on how and when to use the most popular nonparametric procedures. This edition features some procedures that have withstood the test of time and are now used by many practitioners, such as the Fisher Exact Test for two-by-two contingency tables, the Mantel-Haenszel Test for combining several contingency tables, the Kaplan-Meier estimates of the survival curve, the Jonckheere-Terpstra Test and the Page Test for ordered alternatives, and a discussion of the bootstrap method.

Introduction to Nonparametric Statistics for the Biological Sciences Using R Dec 24 2020 This book contains a rich set of tools for nonparametric analyses, and the purpose of this text is to provide guidance to students and professional researchers on how R is used for nonparametric data analysis in the biological sciences: To introduce when nonparametric approaches to data analysis are appropriate To introduce the leading nonparametric tests commonly used in biostatistics and how R is used to generate appropriate statistics for each test To introduce common figures typically associated with nonparametric data analysis and how R is used to generate appropriate figures in support of each data set The book focuses on how R is used to distinguish between data that could be classified as nonparametric as opposed to data that could be classified as parametric, with both approaches to data classification covered extensively. Following an introductory lesson on nonparametric statistics for the biological sciences, the book is organized into eight self-contained lessons on various analyses and tests using R to broadly compare differences between data sets and statistical approach.

Nonparametric Statistical Inference Mar 19 2023 Praise for previous editions: "... a classic with a long history." – Statistical Papers "The fact that the first edition of this book was published in 1971 ... [is] testimony to the book's success over a long period." – ISI Short Book Reviews "... one of the best books available for a theory course on nonparametric statistics. ... very well written and organized ... recommended for teachers and graduate students." – Biometrics "... There is no competitor for this book and its comprehensive development and application of nonparametric methods. Users of one of the earlier editions should certainly consider upgrading to this new edition." – Technometrics "... Useful to students and research workers ... a good textbook for a beginning graduate-level course in nonparametric statistics." – Journal of the American Statistical Association Since its first publication in 1971, Nonparametric Statistical Inference has been widely regarded as the source for learning about nonparametrics. The Sixth Edition carries on this tradition and incorporates computer solutions based on R. Features Covers the most commonly used nonparametric procedures States the assumptions, develops the theory behind the procedures, and illustrates the techniques using realistic examples from the social, behavioral, and life sciences Presents tests of hypotheses, confidence-interval estimation, sample size determination, power, and comparisons of competing procedures Includes an Appendix of user-friendly tables needed for solutions to all data-oriented examples Gives examples of computer applications based on R, MINITAB, STATXACT, and SAS Lists over 100 new references Nonparametric Statistical Inference, Sixth Edition, has been thoroughly revised and rewritten to make it more readable and reader-friendly. All of the R solutions are new and make this book much more useful for applications in modern times. It has been updated throughout and contains 100 new citations, including some of the most recent, to make it more current and useful for researchers.

Nonparametric Statistical Methods For

Complete and Censored Data Mar 07 2022 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.

Handbook of Nonparametric Statistics: Analysis of variance Oct 22 2020

Nonparametric Density Estimation Jun 17 2020 This book gives a rigorous, systematic treatment of density estimates, their construction, use and analysis with full proofs. It develops L1 theory, rather than the classical L2, showing how L1 exposes fundamental properties of density estimates masked by L2.

Handbook of nonparametric statistics Apr 27 2021

Nonparametric Statistics Nov 22 2020 This volume presents the latest advances and trends in nonparametric statistics, and gathers selected and peer-reviewed contributions from the 3rd Conference of the International Society for Nonparametric Statistics (ISNPS), held in Avignon, France on June 11-16, 2016. It covers a broad range of nonparametric statistical methods, from density estimation, survey sampling, resampling methods, kernel methods and extreme values, to statistical learning and classification, both in the standard i.i.d. case and for dependent data, including big data. The International Society for Nonparametric Statistics is uniquely global, and its international conferences are intended to foster the exchange of ideas and the latest advances among researchers from around the world, in cooperation with established statistical societies such as the Institute of Mathematical Statistics, the Bernoulli Society and the International Statistical Institute. The 3rd ISNPS conference in Avignon attracted more than 400 researchers from around the globe, and contributed to the further development and dissemination of nonparametric statistics knowledge.

Robustness of Statistical Methods and Nonparametric Statistics Feb 06 2022 This volume contains most of the invited and contributed papers presented at the Conference on Robustness of Statistical Methods and Nonparametric Statistics held in the castle oj'Schwerin, Mai 29 - June 4 1983. This conference was organized by the Mathematical Society of the GDR in cooperation with the Society of Physical and Mathematical Biology of the GDR, the GDR-Region of the International Biometric Society and the Academy of Agricultural Sciences of the GDR. All papers included were thoroughly reviewed by scientist listed under the heading "Editorial Collabora tories·'. Some contributions, we are sorry to report, were not recommended for publi cation by the rf'vif'wers and do not appear in these proceedings. The editors thank the reviewers for their valuable comments and suggestions. The conference was organizf'd bv a Programme Committee, its chairman was Prof. Dr. Dieter Rasch (Research Centre of Animal Production, Dummerstorf-Rostock). The members of the Programme Committee were Prof. Dr. ‚Johannes Adam (Martin-Luther-University Halle) Prof. Dr. Heinz Ahrens (Academy of Sciences of the GDR, Berlin) Doz. Dr. Jana Jureckova (Charles University Praha) Prof. Dr. Moti Lal Tiku (McMaster University, Hamilton,

Ontario) The aim of the conference was to discuss several aspects of robustness but mainly to present new results regarding the robustness of classical statistical methods especially tests, confidence estimations, and selection procedures, and to compare their perfor mance with nonparametric procedures. Robustness in this sens~ is understood as intensivity against. violation of the normal assumption.

Handbook of Parametric and Nonparametric Statistical Procedures, Fifth Edition Dec 04 2021 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

Nonparametric Statistical Tests Jul 19 2020 Nonparametric Statistical Tests: A Computational Approach describes classical nonparametric tests, as well as novel and little-known methods such as the Baumgartner-Weiss-Schindler and the Cucconi tests. The book presents SAS and R programs, allowing readers to carry out the different statistical methods, such as permutation and bootstrap tests. The author considers example data sets in each chapter to illustrate methods. Numerous real-life data from various areas, including the bible, and their analyses provide for greatly diversified reading. The book covers: Nonparametric two-sample tests for the location-shift model, specifically the Fisher-Pitman permutation test, the Wilcoxon rank sum test, and the Baumgartner-Weiss-Schindler test Permutation tests, location-scale tests, tests for the nonparametric Behrens-Fisher problem, and tests for a difference in variability Tests for the general alternative, including the (Kolmogorov-)Smirnov test, ordered categorical, and discrete numerical data Well-known one-sample tests such as the sign test and Wilcoxon's signed rank test, a modification suggested by Pratt (1959), a permutation test with original observations, and a one-sample bootstrap test are presented. Tests for more than two groups, the following tests are described in detail: the Kruskal-Wallis test, the permutation F test, the Jonckheere-Terpstra trend test, tests for umbrella alternatives, and the Friedman and Page tests for multiple dependent groups The concepts of independence and correlation, and stratified tests such as the van Elteren test and combination tests The applicability of computer-intensive methods such as bootstrap and permutation tests for non-standard situations and complex designs Although the major development of nonparametric methods came to a certain end in the 1970s, their importance undoubtedly persists. What is still needed is a computer assisted evaluation of their main properties. This book closes that gap.

Concepts of Nonparametric Theory May 17 2020 This book explores both non parametric and general statistical ideas by developing non parametric procedures in simple situations. The major goal is to give the reader a thorough intuitive understanding of the concepts underlying nonparametric procedures and a full appreciation of the properties and operating characteristics of those procedures covered. This book differs from most statistics books by including considerable philosophical and methodological discussion. Special attention is given to discussion of the strengths and weaknesses of various statistical methods and approaches. Difficulties that often arise in applying statistical theory to real data also receive substantial attention. The approach throughout is more conceptual than mathematical. The "Theorem-Proof" format is avoided; generally, properties are "shown," rather than "proved." In most cases the ideas behind the proof of an im portant result are discussed intuitively in the text and formal details are left as an exercise for the reader. We feel that the reader will learn more from working such things out than from checking step-by-step a complete presen tation of all details.

Nonparametric Statistics for Social and Behavioral Sciences Feb 23 2021 Incorporating a hands-on pedagogical approach, Nonparametric Statistics for Social and Behavioral Sciences presents the concepts, principles, and methods used in performing

many nonparametric procedures. It also demonstrates practical applications of the most common nonparametric procedures using IBM's SPSS software. This text is the only current nonparametric book written specifically for students in the behavioral and social sciences. Emphasizing sound research designs, appropriate statistical analyses, and accurate interpretations of results, the text: Explains a conceptual framework for each statistical procedure Presents examples of relevant research problems, associated research questions, and hypotheses that precede each procedure Details SPSS paths for conducting various analyses Discusses the interpretations of statistical results and conclusions of the research With minimal coverage of formulas, the book takes a nonmathematical approach to nonparametric data analysis procedures and shows students how they are used in research contexts. Each chapter includes examples, exercises, and SPSS screen shots illustrating steps of the statistical procedures and resulting output.

Topics in Nonparametric Statistics Oct 02 2021

Nonparametric Statistical Inference, Fifth Edition Jun 10 2022 Proven Material for a Course on the Introduction to the Theory and/or on the Applications of Classical Nonparametric Methods Since its first publication in 1971, Nonparametric Statistical Inference has been widely regarded as the source for learning about nonparametric statistics. The fifth edition carries on this tradition while thoroughly revising at least 50 percent of the material. New to the Fifth Edition Updated and revised contents based on recent journal articles in the literature A new section in the chapter on goodness-of-fit tests A new chapter that offers practical guidance on how to choose among the various nonparametric procedures covered Additional problems and examples Improved computer figures This classic, best-selling statistics book continues to cover the most commonly used nonparametric procedures. The authors carefully state the assumptions, develop the theory behind the procedures, and illustrate the techniques using realistic research examples from the social, behavioral, and life sciences. For most procedures, they present the tests of hypotheses, confidence interval estimation, sample size determination, power, and comparisons of other relevant procedures. The text also gives examples of computer applications based on Minitab, SAS, and StatXact and compares these examples with corresponding hand calculations. The appendix includes a collection of tables required for solving the data-oriented problems. Nonparametric Statistical Inference, Fifth Edition provides in-depth yet accessible coverage of the theory and methods of nonparametric statistical inference procedures. It takes a practical approach that draws on scores of examples and problems and minimizes the theorem-proof format. Jean Dickinson Gibbons was recently interviewed regarding her generous pledge to Virginia Tech.

Applied Nonparametric Statistical Methods, Fourth Edition Dec 16 2022 While preserving the clear, accessible style of previous editions, Applied Nonparametric Statistical Methods, Fourth Edition reflects the latest developments in computer-intensive methods that deal with intractable analytical problems and unwieldy data sets. Reorganized and with additional material, this edition begins with a brief summary of some relevant general statistical concepts and an introduction to basic ideas of nonparametric or distribution-free methods. Designed experiments, including those with factorial treatment structures, are now the focus of an entire chapter. The text also expands coverage on the analysis of survival data and the bootstrap method. The new final chapter focuses on important modern developments, such as large sample methods and computer-intensive applications. Keeping mathematics to a minimum, this text introduces nonparametric methods to undergraduate students who are taking either mainstream statistics courses or statistics courses within other disciplines. By giving the proper attention to data collection and the interpretation of analyses, it provides a full introduction to nonparametric methods.

Nonparametric Statistical Methods Using R Jun 22 2023 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.

An Introduction to Nonparametric Statistics Apr 20 2023 An Introduction to Nonparametric Statistics presents techniques for statistical analysis in the absence of strong assumptions about the distributions generating the data. Rank-based and resampling techniques are heavily represented, but robust techniques are considered as well. These techniques include one-sample testing and estimation, multi-sample testing and estimation, and regression. Attention is paid to the intellectual development of the field, with a thorough review of bibliographical references. Computational tools, in R and SAS, are developed and illustrated via examples. Exercises designed to reinforce examples are included. Features Rank-based techniques including sign, Kruskal-Wallis, Friedman, Mann-Whitney and Wilcoxon tests are presented Tests are inverted to produce estimates and confidence intervals Multivariate tests are explored Techniques reflecting the dependence of a response variable on explanatory variables are presented Density estimation is explored The bootstrap and jackknife are discussed This text is intended for a graduate student in applied statistics. The course is best taken after an introductory course in statistical methodology, elementary probability, and regression. Mathematical prerequisites include calculus through multivariate differentiation and integration, and, ideally, a course in matrix algebra.

Nonparametric Statistics for Applied Research Nov 15 2022 Non-parametric methods are widely used for studying populations that take on a ranked order (such as movie reviews receiving one to four stars). The use of non-parametric methods may be necessary when data have a ranking but no clear numerical interpretation, such as when assessing preferences. In terms of levels of measurement, non-parametric methods result in "ordinal" data. As non-parametric methods make fewer assumptions, their applicability is much wider than the corresponding parametric methods. In particular, they may be applied in situations where less is known about the application in question. Also, due to the reliance on fewer assumptions, non-parametric methods are more robust. Non-parametric methods have many popular applications, and are widely used in research in the fields of the behavioral sciences and biomedicine. This is a textbook on non-parametric statistics for applied research. The authors propose to use a realistic yet mostly fictional situation and series of dialogues to illustrate in detail the statistical processes required to complete data analysis. This book draws on a readers existing elementary knowledge of statistical analyses to broaden his/her research capabilities. The material within the book is covered in such a way that someone with a very limited knowledge of statistics would be able to read and understand the concepts detailed in the text. The “real world” scenario to be presented involves a multidisciplinary team of behavioral, medical, crime analysis, and policy analysis professionals work together to answer specific empirical questions regarding real-world applied problems. The reader is introduced to the team and the data set, and through the course of the text follows the team as they progress through the decision making process of narrowing the

data and the research questions to answer the applied problem. In this way, abstract statistical concepts are translated into concrete and specific language. This text uses one data set from which all examples are taken. This is radically different from other statistics books which provide a varied array of examples and data sets. Using only one data set facilitates reader-directed teaching and learning by providing multiple research questions which are integrated rather than using disparate examples and completely unrelated research questions and data.

Practical Nonparametric Statistics Jan 05 2022 Probability theory; Statistical inference; Some tests based on the binomial distribution; Contingency tables; Some methods based on ranks; Statistics of the koolmogorov-smirnov type.

Elements of Nonparametric Statistics Jul 11 2022

Applied Nonparametric Statistics Jul 31 2021 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.