

Biostatistics Basic Concepts And Methodology For The Health Sciences

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TRISTEN ANDREWS

Biostatistics Elsevier

Praise for the First Edition ". . . an excellent textbook . . . an indispensable reference for biostatisticians and epidemiologists." —International Statistical Institute A new edition of the definitive guide to classical and modern methods of biostatistics Biostatistics consists of various quantitative techniques that are essential to the description and evaluation of relationships among biologic and medical phenomena. Biostatistical Methods: The Assessment of Relative Risks, Second Edition develops basic concepts and derives an expanded array of biostatistical methods through the application of both classical statistical tools and more modern likelihood-based theories. With its fluid and balanced presentation, the book guides readers through the important statistical methods for the assessment of absolute and relative risks in epidemiologic studies and clinical trials with categorical, count, and event-time data. Presenting a broad scope of coverage and the latest research on the topic, the author begins with categorical data analysis methods for cross-sectional, prospective, and retrospective studies of binary, polychotomous, and ordinal data. Subsequent chapters present modern model-based approaches that include unconditional and conditional logistic regression; Poisson and negative binomial models for count data; and the analysis of event-time data including the Cox proportional hazards model and its generalizations. The book now includes an introduction to mixed models with fixed and random effects as well as expanded methods for evaluation of sample size and power. Additional new topics featured in this Second Edition include: Establishing equivalence and non-inferiority Methods for the analysis of polychotomous and ordinal data, including matched data and the Kappa agreement index Multinomial logistic for polychotomous data and proportional odds models for ordinal data Negative binomial models for count data as an alternative to the Poisson model GEE models for the analysis of longitudinal repeated measures and multivariate observations Throughout the book, SAS is utilized to illustrate applications to numerous real-world examples and case studies. A related website features all the data used in examples and problem sets along with the author's SAS routines. Biostatistical Methods, Second Edition is an excellent book for biostatistics courses at the graduate level. It is also an invaluable reference for biostatisticians, applied statisticians, and epidemiologists.

Basic Biostatistics CRC Press

Anyone who attempts to read genetics or epidemiology research literature needs to understand the essentials of biostatistics. This book, a revised new edition of the successful Essentials of Biostatistics has been written to provide such an understanding to those who have little or no statistical background and who need to keep abreast of new findings in this fast moving field. Unlike many other elementary books on biostatistics, the main focus of this book is to explain basic concepts needed to understand statistical procedures. This Book: Surveys basic statistical methods used in the genetics and epidemiology literature, including maximum likelihood and least squares. Introduces methods, such as permutation testing and bootstrapping, that are becoming more widely used in both genetic and epidemiological research. Is illustrated throughout with simple examples to clarify the statistical methodology. Explains Bayes' theorem pictorially. Features exercises, with answers to alternate questions, enabling use as a course text. Written at an elementary mathematical level so that readers with high school mathematics will find the content accessible. Graduate students studying genetic epidemiology, researchers and practitioners from genetics, epidemiology, biology, medical research and statistics will find this an invaluable introduction to statistics.

Biostatistics: Basic Concepts And Methodology For The Health Sciences, 9th Ed, Isv Biostatistics Basic Concepts and Methodology for the Health Sciences This ninth edition of Biostatistics: A Foundation for Analysis in the Health Sciences should appeal to the same audience for which the first eight editions were written: advanced undergraduate students, beginning graduate students, and health professionals in need of a reference book on statistical methodology. Biostatistics Basic Concepts and Methodology for the Health Sciences Allied health professionals rely on "Biostatistics" for its high standards of statistical accuracy. It helps them develop a set of statistical tools that are relevant to their field. Now in its ninth edition, the book integrates new applications from several biological science fields throughout the pages. Each chapter now opens with bulleted objectives that highlight the main ideas. Summary boxes of formulae and statistical rules are presented for easy reference and review. Support is also provided for multiple programs such as SPSS, SAS, and STATA, in addition to Minitab. This includes screen captures and technology boxes with step-by-step help. Health professionals will then gain the ability to use technology to analyze data. Biostatistics Basic Concepts and Methodology for the Health Sciences This volume of the Biostatistics and Health Sciences Set focuses on statistics applied to clinical research. The use of Stata for data management and statistical modeling is illustrated using various examples. Many aspects of data processing and statistical analysis of cross-sectional and experimental medical data are covered, including regression models commonly found in medical statistics. This practical book is primarily intended for health researchers with basic knowledge of statistical methodology. Assuming basic concepts, the authors focus on the practice of biostatistical methods essential to clinical research, epidemiology and analysis of biomedical data (including comparison of two groups, analysis of categorical data, ANOVA, linear and logistic regression, and survival analysis). The use of examples from clinical trials and epidemiological studies provide the basis for a series of practical exercises, which provide instruction and familiarize the reader with essential Stata packages and commands. Provides detailed examples

of the use of Stata for common biostatistical tasks in medical research Features a work program structured around the four previous chapters and a series of practical exercises with commented corrections Includes an appendix to help the reader familiarize themselves with additional packages and commands Focuses on the practice of biostatistical methods that are essential to clinical research, epidemiology, and analysis of biomedical data

Biostatistics Springer Science & Business Media

This ninth edition of Biostatistics: A Foundation for Analysis in the Health Sciences should appeal to the same audience for which the first eight editions were written: advanced undergraduate students, beginning graduate students, and health professionals in need of a reference book on statistical methodology.

Theory, Applications, and Computing John Wiley & Sons

Fundamental Concepts for New Clinical Trialists describes the core scientific concepts of designing, data monitoring, analyzing, and reporting clinical trials as well as the practical aspects of trials not typically discussed in statistical methodology textbooks. The first section of the book provides background information about clinical trials. It defines and compares clinical trials to other types of research studies and discusses clinical trial phases, registration, the protocol document, ethical issues, product development, and regulatory processes. It also includes a special chapter outlining the valuable attributes that statisticians can develop to maximize their contributions to a clinical trial. The second section examines scientific issues faced in each progressive step of a clinical trial. It covers issues in trial design, such as randomization, blinding, control-group selection, endpoint selection, superiority versus noninferiority, and parallel group versus crossover designs; data monitoring; analyses of efficacy, safety, and benefit-risk; and the reporting/publication of clinical trial results. As clinical trials remain the gold standard research studies for evaluating the effects of a medical intervention, newcomers to the field must have a fundamental understanding of the concepts to tackle real-world issues in all stages of trials. Drawing on their experiences in academia and industry, the authors provide a foundation for understanding the fundamental concepts necessary for working in clinical trials.

Introduction to Biostatistics CRC Press

Allied health professionals rely on "Biostatistics" for its high standards of statistical accuracy. It helps them develop a set of statistical tools that are relevant to their field. Now in its ninth edition, the book integrates new applications from several biological science fields throughout the pages. Each chapter now opens with bulleted objectives that highlight the main ideas. Summary boxes of formulae and statistical rules are presented for easy reference and review. Support is also provided for multiple programs such as SPSS, SAS, and STATA, in addition to Minitab. This includes screen captures and technology boxes with step-by-step help. Health professionals will then gain the ability to use technology to analyze data.

Management of Hypertension Pharmamed Press

This book is a valuable tool to assist both cardiovascular physicians and scientists learning the intricacies of hypertension research and its milestone studies. All major hypertension trials have been reviewed in this book in chronological order with extensive discussion of the study population, study design, and outcomes and with a special focus on what knowledge they offered, their strengths and weaknesses, statistical errors, impact on international guidelines and unmet needs. Importantly, the book also offers physicians and young scientists with basic knowledge regarding medical biostatistics. It is of critical importance for a scientist involved in the field to understand deeply the process of analyzing medical data. Moreover, the accurate interpretation of the results is central for applying evidence-based medicine in everyday clinical practice. Management of Hypertension: Current Practice and the Application of Landmark Trials is a critical tool to assist in the education of physicians and researchers in the field, providing a separate section on pioneer researchers in hypertension and urging readers to become bright exemplars for scientists wishing to pursue a career in academic medicine and hypertension research.

A Guide to Design, Analysis and Discovery Springer Science & Business Media

This book contains 13 chapters. They include Basic concepts, Probability and Probability distributions, Tests of Hypotheses, Chi-square test, Analysis of Variance, Experimental Designs, Non-Parametric statistics and Research Methodology. All chapters are written in a lucid manner so that students can understand easily without much mathematical background. Live examples are added for illustration purpose for all the statistical methods. In some cases more than one example is added for wide applicability of the statistical tools. SPSS data analysis procedure is included for most of the popular statistical methods by giving an example in each case. Research Methodology chapter is useful to the P.G students for undertaking research for their dissertation work. This book is also intended to serve as a text book for Pharmacy students at U.G. and P.G. level

Causal Inference for Observational and Experimental Data Jones & Bartlett Publishers

Basic Biostatistics is a concise, introductory text that covers biostatistical principles and focuses on the common types of data encountered in public health and biomedical fields. The text puts equal emphasis on exploratory and confirmatory statistical methods. Sampling, exploratory data analysis, estimation, hypothesis testing, and power and precision are covered through detailed, illustrative examples. The book is organized into three parts: Part I addresses basic concepts and techniques; Part II covers analytic techniques for quantitative response variables; and Part III covers techniques for categorical responses. The Second Edition offers many new exercises as well as an all new chapter on "Poisson Random Variables and the Analysis of Rates." With language, examples, and exercises that are accessible to students with modest mathematical backgrounds, this is the perfect

introductory biostatistics text for undergraduates and graduates in various fields of public health. Features: Illustrative, relevant examples and exercises incorporated throughout the book. Answers to odd-numbered exercises provided in the back of the book. (Instructors may request answers to even-numbered exercises from the publisher. Chapters are intentionally brief and limited in scope to allow for flexibility in the order of coverage. Equal attention is given to manual calculations as well as the use of statistical software such as Stata, SPSS, and WinPepi. Comprehensive Companion Website with Student and Instructor's Resources.

Research Methodology and Biostatistics - E-book Elsevier

The ability to analyze and interpret enormous amounts of data has become a prerequisite for success in allied healthcare and the health sciences. Now in its 11th edition, *Biostatistics: A Foundation for Analysis in the Health Sciences* continues to offer in-depth guidance toward biostatistical concepts, techniques, and practical applications in the modern healthcare setting. Comprehensive in scope yet detailed in coverage, this text helps students understand—and appropriately use—probability distributions, sampling distributions, estimation, hypothesis testing, variance analysis, regression, correlation analysis, and other statistical tools fundamental to the science and practice of medicine. Clearly-defined pedagogical tools help students stay up-to-date on new material, and an emphasis on statistical software allows faster, more accurate calculation while putting the focus on the underlying concepts rather than the math. Students develop highly relevant skills in inferential and differential statistical techniques, equipping them with the ability to organize, summarize, and interpret large bodies of data. Suitable for both graduate and advanced undergraduate coursework, this text retains the rigor required for use as a professional reference.

Fundamental Concepts for New Clinical Trialists Waveland Press

Concise, fast-paced, intensive introduction to clinical research design for students and clinical research professionals Readers will gain sufficient knowledge to pass the United States Medical Licensing Examination part I section in Epidemiology

With Applications in the Biological and Life Sciences JP Medical Ltd

Biostatistics is the branch of statistics that deals with data relating to living organisms. This manual is a comprehensive guide to biostatistics for medical students. Beginning with an overview of bioethics in clinical research, an introduction to statistics, and discussion on research methodology, the following sections cover different statistical tests, data interpretation, probability, and other statistical concepts such as demographics and life tables. The final section explains report writing and applying for research grants and a chapter on 'measurement and error analysis' focuses on research papers and clinical trials. Key Points Comprehensive guide to biostatistics for medical students Covers research methodology, statistical tests, data interpretation, probability and more Includes other statistical concepts such as demographics and life tables Explains report writing and grant application in depth

An Introduction to Clinical Research Elsevier Health Sciences

This book offers a comprehensive guide to essential techniques and methods in biostatistics, addressing the underlying concepts to aid in comprehension. The use of biostatistics techniques has increased manifold in the recent past, due to their suitability for applications in a wide range of problems in various fields. This book helps learners grasp the materials in detail, equipping them to use biostatistics techniques independently and confidently. The book starts with a summary of background materials, followed by methods and techniques. As such, with only minimum guidance from teachers, this book can provide materials for self-learning of biostatistics techniques with a deeper level of understanding. The first two chapters focus on fundamental concepts, sources of data, data types, organization of data, and descriptive statistics, followed by the basic probability concepts, distributions and sampling distributions needed in order to combine descriptive statistics with inferential techniques. Estimation and tests of hypotheses are illustrated in two separate chapters. Important measures of association, linear regression, analysis of variance and logistic regression, and proportional hazards models are then presented systematically, ensuring that the book covers the topics most essential to students and users of biostatistics in connection with a wide range of applications in various fields. The book has been carefully structured, and the content is presented in a sequence covering the essential background in a highly systematic manner, supporting the learning process by presenting theory and applications that complement one another.

Introductory Statistics with R Springer Science & Business Media

"This very informative book introduces classical and novel statistical methods that can be used by theoretical and applied biostatisticians to develop efficient solutions for real-world problems encountered in clinical trials and epidemiological studies. The authors provide a detailed discussion of methodological and applied issues in parametric, semi-parametric and nonparametric approaches, including computationally extensive data-driven techniques, such as empirical likelihood, sequential procedures, and bootstrap methods. Many of these techniques are implemented using popular software such as R and SAS."— Vlad Dragalin, Professor, Johnson and Johnson, Spring House, PA "It is always a pleasure to come across a new book that covers nearly all facets of a branch of science one thought was so broad, so diverse, and so dynamic that no single book could possibly hope to capture all of the fundamentals as well as directions of the field. The topics within the book's purview—fundamentals of measure-theoretic probability; parametric and non-parametric statistical inference; central limit theorems; basics of martingale theory; Monte Carlo methods; sequential analysis; sequential change-point detection—are all covered with inspiring clarity and precision. The authors are also very thorough and avail themselves of the most recent scholarship. They provide a detailed account of the state of the art, and bring together results that were previously scattered across disparate disciplines. This makes the book more than just a textbook: it is a panoramic companion to the field of Biostatistics. The book is self-

contained, and the concise but careful exposition of material makes it accessible to a wide audience. This is appealing to graduate students interested in getting into the field, and also to professors looking to design a course on the subject." — Aleksey S. Polunchenko, Department of Mathematical Sciences, State University of New York at Binghamton This book should be appropriate for use both as a text and as a reference. This book delivers a "ready-to-go" well-structured product to be employed in developing advanced courses. In this book the readers can find classical and new theoretical methods, open problems and new procedures. The book presents biostatistical results that are novel to the current set of books on the market and results that are even new with respect to the modern scientific literature. Several of these results can be found only in this book.

Structural Equation Modeling with Mplus John Wiley & Sons

Bernard Rosner's *FUNDAMENTALS OF BIOSTATISTICS* is a practical introduction to the methods, techniques, and computation of statistics with human subjects. It prepares students for their future courses and careers by introducing the statistical methods most often used in medical literature. Rosner minimizes the amount of mathematical formulation (algebra-based) while still giving complete explanations of all the important concepts. As in previous editions, a major strength of this book is that every new concept is developed systematically through completely worked out examples from current medical research problems. Most methods are illustrated with specific instructions as to implementation using software either from SAS, Stata, R, Excel or Minitab. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Second Edition John Wiley & Sons

The book is aimed at providing an understanding of basic principles and practices of Biostatistics. Attempt has been made to give a comprehensive inside into the basic concepts of biostatistics i.e. sound easy to read, relevant and useful to students and practitioners of biostatistics. The book includes the design of clinical trials and epidemiological studies collection of data, research methods, clinical measurement and sample size, calculations for various study designs. This makes it a handbook of biostatistics for students and researchers for agriculture, veterinary, life sciences, medicine, public health, biological and social sciences.

Biostatistics Springer

This text book is a comprehensive, user friendly and easy to read resource on Biostatistics and Research Methodology. It is meant for undergraduate and post graduate students of medical and biomedical sciences. Health researchers, research supervisors and faculty members may find it useful as a reference book.

CRC Press

Biostatistics and Epidemiology/A Primer for Health Professionals offers practical guidelines and gives a concise framework for research and interpretation in the field. In addition to major sections covering statistics and epidemiology, the book includes a comprehensive exploration of scientific methodology, probability, and the clinical trial. The principles and methods described in this book are basic and apply to all medical subspecialties, psychology and education. The primer will be especially useful to public health officials and students looking for an understandable treatment of the subject.

Foundations of Biostatistics Routledge

Essentials of Biostatistics in Public Health, Second Edition provides a fundamental and engaging background for students learning to apply and appropriately interpret biostatistics applications in the field of public health. Many examples are drawn directly from the author's remarkable clinical experiences with the renowned Framingham Heart Study, making this text practical, interesting, and accessible for those with little mathematical background. The examples are real, relevant, and manageable in size so that students can easily focus on applications rather than become overwhelmed by computations."

Heart Failure Academic Publishers

Essentials of Research Methodology and Biostatistics—A Comprehensive Guide for Health Care Professionals is a precisely written textbook for undergraduate and postgraduate medical, dental, nursing, physiotherapy, clinical psychology and other allied health care profession students. The book is an excellent attempt towards introducing the students and faculty members to the various research methodologies adopted in the field of health sciences to record health-related data. Easy to follow: An applied, user-friendly textbook with self-explanatory simple language and presentation for the students. An example-oriented book: Plenty of examples to equip the students to prepare for exams as well as independently conduct their research activities. Illustrative presentation: Diagrammatic and tabular presentation of content to facilitate quick review and recall of important concepts. Systematic and logical organization: Content organized in systematic and logical manner to facilitate better understanding. Qualitative and quantitative research methods, analysis: Adequate coverage of quantitative as well as qualitative research process, methodology and analysis. Authentic content: Content reviewed, authenticated by a panel of renowned faculty members/experts. Unique content: Several unique topics such as sample size calculation, uses of different parametric and nonparametric statistical tests, methods, qualitative research process, and analysis included, with practical examples from Indian scenario, which are rarely found in other research methodology books. Enormous knowledge in a nutshell: In-depth coverage of all aspects of research methodology and biostatistics in a concise manner. Review questions: About 150 end-of-chapter MCQs, a useful resource for the readers to review their preparation for the university exams and also to prepare for qualifying entrance exams for postgraduate and doctoral courses.