

## Principles Of Biostatistics With Cd

The high-level language of R is recognized as one of the most powerful and flexible statistical software environments, and is rapidly becoming the standard setting for quantitative analysis, statistics and graphics. R provides free access to unrivalled coverage and cutting-edge applications, enabling the user to apply numerous statistical methods ranging from simple regression to time series or multivariate analysis. Building on the success of the author's bestselling *Statistics: An Introduction using R*, *The R Book* is packed with worked examples, providing an all inclusive guide to R, ideal for novice and more accomplished users alike. The book assumes no background in statistics or computing and introduces the advantages of the R environment, detailing its applications in a wide range of disciplines. Provides the first comprehensive reference manual for the R language, including practical guidance and full coverage of the graphics facilities. Introduces all the statistical models covered by R, beginning with simple classical tests such as chi-square and t-test. Proceeds to examine more advance methods, from regression and analysis of variance, through to generalized linear models, generalized mixed models, time series, spatial statistics, multivariate statistics and much more. *The R Book* is aimed at undergraduates, postgraduates and professionals in science, engineering and medicine. It is also ideal for students and professionals in statistics, economics, geography and the social sciences.

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Encyclopedic in breadth, yet practical and concise, *Medical Biostatistics, Fourth Edition* focuses on the statistical aspects of medicine with a medical perspective, showing the utility of biostatistics as a tool to manage many medical uncertainties. This edition includes more topics in order to fill gaps in the previous edition. Various topics have been enlarged and modified as per the new understanding of the subject.

This edition is a reprint of the second edition published in 2000 by Brooks/Cole and then Cengage Learning.

*Principles of Biostatistics* is aimed at students in the biological and health sciences who wish to learn modern research methods. It is based on a required course offered at the Harvard School of Public Health. In addition to these graduate students, many health professionals from the Harvard medical area attend as well. The book is divided into three parts. The first five chapters deal with collections of numbers and ways in which to summarize, explore, and explain them. The next two chapters focus on probability and introduce the tools needed for the subsequent investigation of uncertainty. It is only in the eighth chapter and thereafter that the authors distinguish between populations and samples and begin to investigate the inherent variability introduced by sampling, thus progressing to inference. Postponing the slightly more difficult concepts until a solid foundation has been established makes it easier for the reader to comprehend them. The supplements include a manual for students with solutions for odd-numbered exercises, a manual for instructors with solutions to all exercises, and selected data sets.

Marcello Pagano is Professor of Statistical Computing in the Department of Biostatistics at the Harvard School of Public Health. His research in biostatistics is on computer intensive inference and surveillance methods that involve screening methodologies, with their associated laboratory tests, and in obtaining more accurate testing results that use existing technologies.

Kimberlee Gauvreau is Associate Professor in the Department of Biostatistics and Associate Professor of Pediatrics at Harvard Medical School. Dr. Gauvreau's research focuses on biostatistical issues arising in the field of pediatric cardiology. She also works on the development and validation of methods of adjustment for case mix complexity.

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.

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This is the second edition of the first book to provide a complete picture of the design, conduct and analysis of observational studies, the most common type of epidemiologic study. Stressing sample size estimation, sampling, and measurement error, the authors cover the full scope of observational studies, describing cohort studies, case-control studies, cross-sectional studies, and epidemic investigation. The use of statistical procedures is described in easy-to-understand terms. This book examines statistical methods and models used in the fields of global health and epidemiology. It includes methods such as innovative probability sampling, data harmonization and encryption, and advanced descriptive, analytical and monitory methods. Program codes using R are included as well as real data examples. Contemporary global health and epidemiology involves a myriad of medical and health challenges, including inequality of treatment, the HIV/AIDS epidemic and its subsequent control, the flu, cancer, tobacco control, drug use, and environmental pollution. In addition to its vast scales and telescopic perspective; addressing global health concerns often involves examining resource-limited populations with large geographic, socioeconomic diversities. Therefore, advancing global health requires new epidemiological design, new data, and new methods for sampling, data processing, and statistical analysis. This book provides global health researchers with methods that will enable access to and utilization of existing data. Featuring contributions from both epidemiological and biostatistical scholars, this book is a practical resource for researchers, practitioners, and

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students in solving global health problems in research, education, training, and consultation.

Learn biostatistics the easy way. This outstanding resource presents the key concepts you need to understand biostatistics and how to apply them in clinical medicine. Easy-to-understand examples and analogies explain complex concepts, and practical applications provide you with real tools for use in daily practice. The book's organization is intuitive, so that concepts build upon one another, maximizing understanding. This book will give you the confidence to appraise the existing literature - and the vocabulary you need to discuss it. Uses an easy-to-understand presentation and writing style to make the material easily accessible. Places its emphasis on concepts, not formulas, for more clinical-based guidance. Focuses on practical applications of biostatistics to medical practice to give you a better understanding of how and why research is conducted. Presents concise but comprehensive coverage to create easily accessible yet complete information. Provides examples, analogies, and memorization tips to make the material easier to absorb.

Uses practical examples to teach laboratory scientists and research clinicians how to accomplish statistical tasks confidently.

Principles of BiostatisticsWadsworth Publishing CompanyPrinciples of BiostatisticsCRC Press

Includes fold-out companion website information guide. This book is a first course in statistics for students of biology. Most of the examples have an ecological bias, but illustrate principles which have direct relevance for

biologists doing laboratory work. The structured approach begins with basic concepts, and progresses towards an appreciation of the needs and use of analysis of variance and regression, and includes the use of computer statistical packages. The work is clearly explained with worked examples of real-life biological problems, and should be suitable for undergraduate students engaged in quantitative biological work.

Biostatistics should give students a sound grasp of the key principles of biological statistics without overwhelming detail, and should allow students to quickly apply techniques to their own work and data.

**INTRODUCTORY APPLIED BIOSTATISTICS (WITH CD-ROM)** explores statistical applications in the medical and public health fields. Examples drawn directly from the authors' clinical experiences with applied biostatistics make this text both practical and applicable. You'll master application techniques by hand before moving on to computer applications, with SAS programming code and output for each technique covered in every chapter. For each topic, the book addresses methodology, including assumptions, statistical formulas, and appropriate interpretation of results. This book is a must-have for every student preparing for a statistical career in a healthcare field!

Comprehensive guide to basic principles of epidemiology and biostatistics. Concise study notes and exercises are included. Emphasis is on application. This edition includes a revised chapter on the appraisal of epidemiological studies, a new section on meta-analysis, and more.

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The second edition of this innovative work again provides a unique perspective on the clinical discovery process by providing input from experts within the NIH on the principles and practice of clinical research. Molecular medicine, genomics, and proteomics have opened vast opportunities for translation of basic science observations to the bedside through clinical research. As an introductory reference it gives clinical investigators in all fields an awareness of the tools required to ensure research protocols are well designed and comply with the rigorous regulatory requirements necessary to maximize the safety of research subjects. Complete with sections on the history of clinical research and ethics, copious figures and charts, and sample documents it serves as an excellent companion text for any course on clinical research and as a must-have reference for seasoned researchers. \*Incorporates new chapters on Managing Conflicts of Interest in Human Subjects Research, Clinical Research from the Patient's Perspective, The Clinical Researcher and the Media, Data Management in Clinical Research, Evaluation of a Protocol Budget, Clinical Research from the Industry Perspective, and Genetics in Clinical Research \*Addresses the vast opportunities for translation of basic science observations to the bedside through clinical research \*Delves into data management and addresses how to collect data and use it for discovery \*Contains valuable, up-to-date information on how to obtain funding from the federal government

Basic Biostatistics for Medical and Biomedical Practitioners, Second Edition makes it easier to plan

experiments, with an emphasis on sample size. It also shows what choices are available when simple tests are unsuitable and offers investigators an overview of how the kinds of complex tests that they won't do on their own work. The second edition presents a new, revised and enhanced version of the chapters, taking into consideration new developments and tools available, discussing topics, such as the basic aspects of statistics, continuous distributions, hypothesis testing, discrete distributions, probability in epidemiology and medical diagnosis, comparing means, regression and correlation. This book is a valuable source for students and researchers looking to expand or refresh their understanding of statistics as it applies to the biomedical and research fields. Based on the author's 40+ years of teaching statistics to medical fellows and biomedical researchers across a wide range of fields, it is a valuable source for researchers who need to understand more about biostatistics to apply it to their work. Introduces procedures, such as multiple regression, Poisson distribution, binomial and multinomial distributions, variance analysis, and how to design and sample clinical trials Presents a new section on ANCOVA Gives references to free online tests Includes over 200 diagrams, enabling the reader to visualize the results Discusses NHST testing in detail, its disadvantages, and how to think about probability

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methods that involve screening methodologies, with their associated laboratory tests, and in obtaining more accurate testing results that use existing technologies. Kimberlee Gauvreau is Associate Professor in the Department of Biostatistics and Associate Professor of Pediatrics at Harvard Medical School. Dr. Gauvreau's research focuses on biostatistical issues arising in the field of pediatric cardiology. She also works on the development and validation of methods of adjustment for case mix complexity.

Fundamental Statistical Principles for Neurobiologists introduces readers to basic experimental design and statistical thinking in a comprehensive, relevant manner. This book is an introductory statistics book that covers fundamental principles written by a neuroscientist who understands the plight of the neuroscience graduate student and the senior investigator. It summarizes the fundamental concepts associated with statistical analysis that are useful for the neuroscientist, and provides understanding of a particular test in language that is more understandable to this specific audience, with the overall purpose of explaining which statistical technique should be used in which situation. Different types of data are discussed such as how to formulate a research hypothesis, the primary types of statistical errors and statistical power, followed by how to actually graph data and

what kinds of mistakes to avoid. Chapters discuss variance, standard deviation, standard error, mean, confidence intervals, correlation, regression, parametric vs. nonparametric statistical tests, ANOVA, and post hoc analyses. Finally, there is a discussion on how to deal with data points that appear to be "outliers" and what to do when there is missing data, an issue that has not sufficiently been covered in literature. An introductory guide to statistics aimed specifically at the neuroscience audience Contains numerous examples with actual data that is used in the analysis Gives the investigators a starting pointing for evaluating data in easy-to-understand language Explains in detail many different statistical tests commonly used by neuroscientists

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. High-Yield™ Biostatistics, Third Edition provides a concise review of the biostatistics concepts that are tested in the USMLE Step 1. Information is presented in an easy-to-follow format, with High-Yield Points that help students focus on the most important USMLE Step 1 facts. Each chapter includes review questions, and an appendix provides answers with explanations. This updated edition includes additional information on

epidemiology/public health. The improved, more readable format features briefer, bulleted paragraphs, more High-Yield Points, and boldfaced terms.

Learn how to solve basic statistical problems with Ron Cody's easy-to-follow style using the point-and-click SAS Studio tasks. Aimed specifically at the health sciences, *Biostatistics by Example Using SAS Studio*, provides an introduction to SAS Studio tasks. The book includes many biological and health-related problem sets and is fully compatible with SAS University Edition. After reading this book you will be able to understand temporary and permanent SAS data sets, and you will learn how to create them from various data sources. You will also be able to use SAS Studio statistics tasks to generate descriptive statistics for continuous and categorical data. The inferential statistics portion of the book covers the following topics: paired and unpaired t tests one-way analysis of variance N-way ANOVA correlation simple and multiple regression logistic regression categorical data analysis power and sample size calculations Besides describing each of these statistical tests, the book also discusses the assumptions that need to be met before running and interpreting these tests. For two-sample tests and N-way tests, nonparametric tests are also described. This book leads you step-by-step through each of the statistical tests with numerous screen shots, and

you will see how to read and interpret all of the output generated by these tests. Experience with some basic statistical tests used to analyze medical data or classroom experience in biostatistics or statistics is required. Although the examples are related to the medical and biology fields, researchers in other fields such as psychology or education will find this book helpful. No programming experience is required. Loading data files into SAS University Edition? [Click here for more information.](#)

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Learn to evaluate and apply statistics in medicine, medical research, and all health-related fields Basic & Clinical Biostatistics provides medical students, researchers, and practitioners with the knowledge needed to develop sound judgment about data applicable to clinical care. This fifth edition has been updated throughout to deliver a comprehensive, timely introduction to biostatistics and epidemiology as applied to medicine, clinical practice, and research. Particular emphasis is on study design and interpretation of results of research. The book features "Presenting Problems" drawn from studies published in the medical literature, end-of-chapter exercises, and a reorganization of content to reflect the way investigators ask research questions. To

facilitate learning, each chapter contain a set of key concepts underscoring the important ideas discussed. Features:

- Key components include a chapter on survey research and expanded discussion of logistic regression, the Cox model, and other multivariate statistical methods
- Extensive examples illustrate statistical methods and design issues
- Updated examples using R, an open source statistical software package
- Expanded coverage of data visualization, including content on visual perception and discussion of tools such as Tableau, Qlik and MS Power BI
- Sampling and power calculations imbedded with discussion of the statistical model
- Updated content, examples, and data sets throughout

With its engaging and conversational tone, *Essential Biostatistics: A Nonmathematical Approach* provides a clear introduction to statistics for students in a wide range of fields, and a concise statistics refresher for scientists and professionals who need to interpret statistical results. It explains the ideas behind statistics in nonmathematical terms, offers perspectives on how to interpret published statistical results, and points out common conceptual traps to avoid. It can be used as a stand-alone text or as a supplement to a traditional statistics textbook.

*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 StaTable, SPSS, and WinPepi. Comprehensive Companion Website with Student and Instructor's Resources.

Here is a book for clinicians, clinical investigators,

trainees, and graduates who wish to develop their proficiency in the planning, execution, and interpretation of clinical and epidemiological research. Emphasis is placed on the design and analysis of research studies involving human subjects where the primary interest concerns principles of analytic (cause-and-effect) inference. The topic is presented from the standpoint of the clinician and assumes no previous knowledge of epidemiology, research design or statistics. Extensive use is made of illustrative examples from a variety of clinical specialties and subspecialties. The book is divided into three parts. Part I deals with epidemiological research design and analytic inference, including such issues as measurement, rates, analytic bias, and the main forms of observational and experimental epidemiological studies. Part II presents the principles and applications of biostatistics, with emphasis on statistical inference. Part III comprises four chapters covering such topics as diagnostic tests, decision analysis, survival (life-table) analysis, and causality. Biostatistics deals with making sense of data. While statistical inference is essential in our application of the research findings to clinical decision-making regarding the care of our patients, statistical inference without clinical relevance or importance can be very misleading and even meaningless. This textbook has attempted to deemphasize p value in

the interpretation of clinical and biomedical data by stressing the importance of confidence intervals, which allow for the quantification of evidence. For example, a large study due to a large sample size that minimizes variability may show a statistically significant difference while in reality the difference is too insignificant to warrant any clinical relevance. Covers these relevant topics in biostatistics: Design Process, Sampling & Reality in Statistical Modeling Basics of Biostatistical Reasoning & Inference Central Tendency Theorem & Measures of Dispersion Most commonly used & abused parametric test t test Most commonly used & abused non-parametric test chi squared statistic Sample size and power estimations Logistic/Binomial Regression Models Binary Outcomes Time-to-Event Data - Survival Analysis & Count Data Poisson Regression ANOVA, ANCOVA Mixed Effects Model (Fixed and Random), RANOVA, GEE Simple & Multiple Linear Regression Models Correlation Analysis (Pearson & Spearman Rank) Clinical & Statistical Significance p value as a function of sample size Clinical and biomedical researchers often ignore an important aspect of evidence discovery from their funded or unfunded projects. Since the attempt is to illustrate some sets of relationships from the data set, researchers often do not exercise substantial amount of time in assessing the reliability and validity of the data to be utilized in the analysis.

However, the expected inference or the conclusion to be drawn is based on the analysis of the un-assessed data. Reality in statistical modeling of biomedical and clinical research data remains the focus of scientific evidence discovery, and this book. This text is written to highlight the importance of appropriate design prior to analysis by placing emphasis on subject selection and probability sample and the randomization process when applicable prior to the selection of the analytic tool. In addition, this book stresses the importance of biologic and clinical significance in the interpretation of study findings. The basis for statistical inference, implying the quantification of random error is random sample, which had been perpetually addressed in this book. When studies are conducted without a random sample, except when disease registries/databases or consecutive subjects are utilized, as often encountered in clinical and biomedical research, it is meaningless to report the findings with p value.

Biostatistics Decoded covered a large number of statistical methods that are mainly applied to clinical and epidemiological research, as well as a comprehensive discussion of study designs for observational research and clinical trials, two important concerns for the clinical researcher. In this second edition, new material is included covering statistical methods and study designs that are used

to analyse research. Following the same methodology used in the first edition, the chapters are presented in two levels of detail, one for the reader who wishes only to understand the rationale behind each statistical method, and one for the reader who wishes to understand the computations. Key features include: Extensive coverage of the design and analysis of experiments for basic science research. Experimental designs are presented together with the statistical methods. The rationale of all forms of ANOVA is explained with simple mathematics. A comprehensive presentation of statistical tests for multiple comparisons. Calculations for all statistical methods are illustrated with examples and explained step-by-step. This book presents biostatistical concepts and methods in a way that is accessible to anyone, regardless of his or her knowledge of mathematics. The topics selected for this book cover will meet the needs of clinical professionals to readers in basic science research. Harvard Medical School, Boston. Textbook for medical and public health students. This one-of-a-kind text book examines health behavior theory, through the context of the "New Public Health". Health Behavior Theory will provide your students with a balanced professional education - one that explores the essential spectrum of theoretical tools as well as the core practices. In this definitive book, D. R. Cox gives a

comprehensive and balanced appraisal of statistical inference. He develops the key concepts, describing and comparing the main ideas and controversies over foundational issues that have been keenly argued for more than two-hundred years. Continuing a sixty-year career of major contributions to statistical thought, no one is better placed to give this much-needed account of the field. An appendix gives a more personal assessment of the merits of different ideas. The content ranges from the traditional to the contemporary. While specific applications are not treated, the book is strongly motivated by applications across the sciences and associated technologies. The mathematics is kept as elementary as feasible, though previous knowledge of statistics is assumed. The book will be valued by every user or student of statistics who is serious about understanding the uncertainty inherent in conclusions from statistical analyses.

Public Health

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.

Prepare for exams and succeed in your biostatistics course with this comprehensive solutions manual.

Featuring worked out-solutions to the problems this manual. This manual shows you how to approach and solve problems using the same step-by-step explanations found in your textbook examples.

Statistical Design, Monitoring, and Analysis of Clinical Trials, Second Edition concentrates on the biostatistics component of clinical trials. This new edition is updated throughout and includes five new chapters. Developed from the authors' courses taught to public health and medical students, residents, and fellows during the past 20 years, the text shows how biostatistics in clinical trials is an integration of many fundamental scientific principles and statistical methods. The book begins with ethical and safety principles, core trial design concepts, the principles and methods of sample size and power calculation, and analysis of covariance and stratified analysis. It then focuses on sequential designs and methods for two-stage Phase II cancer trials to Phase III group sequential trials, covering monitoring safety, futility, and efficacy. The authors also discuss the development of sample size reestimation and adaptive group sequential procedures, phase 2/3 seamless design and trials with predictive

biomarkers, exploit multiple testing procedures, and explain the concept of estimand, intercurrent events, and different missing data processes, and describe how to analyze incomplete data by proper multiple imputations. This text reflects the academic research, commercial development, and public health aspects of clinical trials. It gives students and practitioners a multidisciplinary understanding of the concepts and techniques involved in designing, monitoring, and analyzing various types of trials. The book's balanced set of homework assignments and in-class exercises are appropriate for students and researchers in (bio)statistics, epidemiology, medicine, pharmacy, and public health.

Principles and Applications of Biostatistics covers the primary concepts and methods that are required for a fundamental understanding of the use and interpretation of statistics for the biological and health sciences—from data presentation to multiple regression and analysis of variance. With a focus clarity, brevity, and accuracy, this text provides understandable and focused explanation of statistical principles and applications along with practical examples (provided in R and Microsoft Excel) and problems drawn from biological health and medical settings. Key Features: • Practical questions follow each problem to encourage students to consider why the problem likely exists, help formulate hypotheses, and then statistically

assess those hypotheses. • Abundant assignment problems at the end of sections and each chapter cover a variety of application areas of biostatistics. • Rationale boxes offer explanations of why certain methods are used for specific cases.

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all exercises, and selected data sets, are available at <http://www.crcpress.com/9781138593145>. Marcello Pagano is Professor of Statistical Computing in the Department of Biostatistics at the Harvard School of Public Health. His research in biostatistics is on computer intensive inference and surveillance methods that involve screening methodologies, with their associated laboratory tests, and in obtaining more accurate testing results that use existing technologies. Kimberlee Gauvreau is Associate Professor in the Department of Biostatistics and Associate Professor of Pediatrics at Harvard Medical School. Dr. Gauvreau's research focuses on biostatistical issues arising in the field of pediatric cardiology. She also works on the development and validation of methods of adjustment for case mix complexity.

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