1. Record Nr. UNINA9910830580403321

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Titolo	Basic biostatistics for geneticists and epidemiologists [[electronic resource]] : a practical approach / / Robert C. Elston, William D. Johnson
Pubbl/distr/stampa	Chichester, U.K., : John Wiley & Sons, 2008
ISBN	0-470-74078-7 1-282-34579-6 9786612345791 0-470-02491-7
Descrizione fisica	1 online resource (385 p.)
Altri autori (Persone)	JohnsonWilliam Davis <1941->
Disciplina	570.15195 610.72 614.40727
Soggetti	Medical statistics Medical genetics - Statistical methods Epidemiology - Statistical methods
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Basic Biostatistics for Geneticists and Epidemiologists; CONTENTS; PREFACE; 1 INTRODUCTION: THE ROLE AND RELEVANCE OF STATISTICS, GENETICS AND EPIDEMIOLOGY IN MEDICINE; Why Biostatistics?; What Exactly Is (Are) Statistics?; Reasons for Understanding Statistics; What Exactly is Genetics?; What Exactly is Epidemiology?; How Can a Statistician Help Geneticists and Epidemiologists?; Disease Prevention versus Disease Therapy; A Few Examples: Genetics, Epidemiology and Statistical Inference; Summary; References; 2 POPULATIONS, SAMPLES, AND STUDY DESIGN; The Study of Cause and Effect Populations, Target Populations and Study UnitsProbability Samples and Randomization; Observational Studies; Family Studies; Experimental Studies; Quasi-Experimental Studies; Summary; Further Reading; Problems; 3 DESCRIPTIVE STATISTICS; Why Do We Need Descriptive Statistics?; Scales of Measurement; Tables; Graphs; Proportions and Rates; Relative Measures of Disease Frequency; Sensitivity, Specificity

and Predictive Values; Measures of Central Tendency; Measures of Spread or Variability; Measures of Shape; Summary; Further Reading; Problems; 4 THE LAWS OF PROBABILITY; Definition of Probability
The Probability of Either of Two Events: A or BThe Joint Probability of Two Events: A and B; Examples of Independence, Nonindependence and Genetic Counseling; Bayes' Theorem; Likelihood Ratio; Summary; Further Reading; Problems; 5 RANDOM VARIABLES AND DISTRIBUTIONS; Variability and Random Variables; Binomial Distribution; A Note about Symbols; Poisson Distribution; Uniform Distribution; Normal Distribution; Cumulative Distribution Functions; The Standard Normal (Gaussian) Distribution; Summary; Further Reading; Problems; 6 ESTIMATES AND CONFIDENCE LIMITS; Estimates and Estimators
Notation for Population Parameters, Sample Estimates, and Sample EstimatorsProperties of Estimators; Maximum Likelihood; Estimating Intervals; Distribution of the Sample Mean; Confidence Limits; Summary; Problems; 7 SIGNIFICANCE TESTS AND TESTS OF HYPOTHESES; Principle of Significance Testing; Principle of Hypothesis Testing; Testing a Population Mean; One-Sided versus Two-Sided Tests; Testing a Proportion; Testing the Equality of Two Variances; Testing the Equality of Two Means; Testing the Equality of Two Medians; Validity and Power; Summary; Further Reading; Problems
8 LIKELIHOOD RATIOS, BAYESIAN METHODS AND MULTIPLE HYPOTHESESLikelihood Ratios; Bayesian Methods; Bayes' Factors; Bayesian Estimates and Credible Intervals; The Multiple Testing Problem; Summary; Problems; 9 THE MANY USES OF CHI-SQUARE; The Chi-Square Distribution; Goodness-of-Fit Tests; Contingency Tables; Inference About the Variance; Combining p-Values; Likelihood Ratio Tests; Summary; Further Reading; Problems; 10 CORRELATION AND REGRESSION; Simple Linear Regression; The Straight-Line Relationship When There is Inherent Variability; Correlation; Spearman's Rank Correlation
Multiple Regression

Sommario/riassunto

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 use