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Nota di contenuto	Statistics and Measurement Concepts with OpenStat; Preface; Contents; List of Figures; Chapter 1: Basic Statistics; Introduction; Symbols Used in Statistics; Probability Concepts; Additive Rules of Probability; The Law of Large Numbers; Multiplication Rule of Probability; Permutations and Combinations; Conditional Probability; Bayesian Statistics; Maximum Liklihood (Adapted from S. Purcell, http://statgen.iop.kcl.ac.uk/bgim/mle/sslike_1.html); Model-Fitting; A Simple Example of MLE; Analytic MLE; Numerical MLE; Other Practical Considerations; Removing the Constant; Log-Likelihood Model IdentificationLocal Minima; Probabilty as an Area; Sampling; Chapter 2: Descriptive Statistics; The Mean; Variance and Standard Deviation; Estimating Population Parameters: Mean and Standard Deviation; The Standard Error of the Mean; Testing Hypotheses for Differences Between or Among Means; The Nature of Scientific Investigation; Decision Risks; Hypotheses Related to a Single Mean; Determining Type II Error and Power of the Test; Sample Size Requirements for the Test of One Mean; Confidence Intervals for a Sample Mean; Frequency Distributions; The Normal Distribution Model; The Median

SkewKurtosis; The Binomial Distribution; The Poisson Distribution; The Chi-Squared Distribution; The F Ratio Distribution; The ``Student t Test; Chapter 3: The Product Moment Correlation; Testing Hypotheses for Relationships Among Variables: Correlation; Scattergrams; Transformation to z Scores; Simple Linear Regression; The Least-Squares Fit Criterion; The Variance of Predicted Scores; The Variance of Errors of Prediction; Testing Hypotheses Concerning the Pearson Product-Moment Correlation; Hypotheses About Correlations in One Population; Test That the Correlation Equals a Specific Value
Testing Equality of Correlations in Two PopulationsDifferences Between Correlations in Dependent Samples; Partial and Semi-Partial Correlations; Partial Correlation; Semi-Partial Correlation; Autocorrelation; Series; Introduction; Chapter 4: Multiple Regression; The Linear Regression Equation; Least Squares Calculus; Finding a Change in Y Given a Change in X for Y=f(X); Relative Change in Y for a Change in X; The Concept of a Derivative; Some Rules for Differentiating Polynomials; Geometric Interpretation of a Derivative; Finding the Value of X for Which f(X) Is Least
A Generalization of the Last ExamplePartial Derivatives; Least Squares Regression for Two or More Independent Variables; Matrix Form for Normal Equations Using Raw Scores; Matrix Form for Normal Equations Using Deviation Scores; Matrix Form for Normal Equations Using Standardized Scores; Hypothesis Testing in Multiple Regression; Testing the Significance of the Multiple Regression Coefficient; The Standard Error of Estimate; Testing the Regression Coefficients; Testing the Difference Between Regression Coefficients; Chapter 5: Analysis of Variance; Theory of Analysis of Variance
The Completely Randomized Design

Sommario/riassunto

This statistics book is designed for use with the OpenStat statistics program, an open-source software developed by William Miller. This book and the corresponding free program covers a broad spectrum of statistical theory and techniques. OpenStat users are researchers and students in the social sciences, education, psychology, nursing and medicine who benet from the hands on approach to Statistics. During and upon completion of courses in Statistics or measurement, students and future researchers need a low cost computer program available to them, and OpenStat lls this void. The software is used in Statistics courses around the world with over 50,000 downloads per year. Also available is a user’s manual that covers applications of the OpenStat software, including measurement, ANOVA, regression analyses, simulation, product-moment and partial correlations, and logistic regression. This book and the companion User’s Manual are important learning tools that explain the statistics behind the many analyses possible with the program and demonstrate these analyses. .