Fundamental Statistical Principles for the Neurobiologist: A Survival Guide

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Fundamental Statistical Principles for the Neurobiologist: A Survival Guide 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 knowledge of a particular test in language that is more understandable to the neuroscientist, 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 guidance on how to 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 been sufficiently covered in the literature.

Key Features

- An introductory guide to statistics aimed specifically at the neuroscience audience
- Contains numerous examples with real data used in the analysis
- Covers the basic information that gives the investigator a starting point for evaluating data in easy-to-understand language
- Discusses and explains many different statistical tests that are commonly used in the neuroscience literature

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