Modern Applied Biostatistical Methods is an intermediate text that combines theory, applications, and the details of an analytic computer language. By integrating these elements, it will give students a firm grasp of statistical reasoning.

Statistical analysis typically involves applying theoretically generated techniques to the description and interpretation of collected data. In this text, theory, application and interpretation are combined to present the entire biostatistical process for a series of elementary and intermediate analytic methods. The theoretical basis for each method is discussed with a minimum of mathematics and is applied to a research data example using a computer system called S-PLUS. This system produces concrete numerical results and increases one's understanding of the fundamental concepts and methodology of statistical analysis.

Combining statistical logic, data and computer tools, the author explores such topics as random number generation, general linear models, estimation, analysis of tabular data, analysis of variance and survival analysis. The end result is a clear and complete explanation of the way statistical methods can help one gain an understanding of collected data.

Modern Applied Biostatistical Methods is unlike other statistical texts, which usually deal either with theory or with applications. It integrates the two elements into a single presentation of theoretical background, data, interpretation, graphics, and implementation. This all-around approach will be particularly helpful to students in various biostatistics and advanced epidemiology courses, and will interest all researchers involved in biomedical data analysis. This text is not a computer manual, even though it makes extensive use of computer language to describe and illustrate applied statistical techniques. This makes the details of the statistical process readily accessible, providing insight into how and why a statistical method identifies the properties of sampled data. The first chapter gives a simple overview of the S-PLUS language. The subsequent chapters use this valuable statistical tool to present a variety of analytic approaches.

Publication Year: 1998
Edition: 1st
Author/Editor: Selvin, Steve
Publisher: Oxford University Press (OUP)
Doody's Star Rating: ★★★ Score: 89
Platform: Ovid
Product Type: Book
Speciality: Biostatistics
Epidemiology
Health Systems & Services
# Modern Applied Biostatistical Methods: Using S-Plus

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