Inspired by the Encyclopedia of Statistical Sciences, Second Edition, *this volume outlines the statistical tools for successfully working with modern life and health sciences research*

Data collection holds an essential part in dictating the future of health sciences and public health, as the compilation of statistics allows researchers and medical practitioners to monitor trends in health status, identify health problems, and evaluate the impact of health policies and programs. *Methods and Applications of Statistics in the Life and Health Sciences* serves as a single, one-of-a-kind resource on the wide range of statistical methods, techniques, and applications that are applied in modern life and health sciences in research. Specially designed to present encyclopedic content in an accessible and self-contained format, this book outlines thorough coverage of the underlying theory and standard applications to research in related disciplines such as biology, epidemiology, clinical trials, and public health.

Uniquely combining established literature with cutting-edge research, this book contains classical works and more than twenty-five new articles and completely revised contributions from the acclaimed *Encyclopedia of Statistical Sciences, Second Edition*. The result is a compilation of more than eighty articles that explores classic methodology and new topics, including:

- Sequential methods in biomedical research
- Statistical measures of human quality of life
- Change-point methods in genetics
• Sample size determination for clinical trials

• Mixed-effects regression models for predicting pre-clinical disease

• Probabilistic and statistical models for conception

Statistical methods are explored and applied to population growth, disease detection and treatment, genetic and genomic research, drug development, clinical trials, screening and prevention, and the assessment of rehabilitation, recovery, and quality of life. These topics are explored in contributions written by more than 100 leading academics, researchers, and practitioners who utilize various statistical practices, such as election bias, survival analysis, missing data techniques, and cluster analysis for handling the wide array of modern issues in the life and health sciences.

With its combination of traditional methodology and newly developed research, Methods and Applications of Statistics in the Life and Health Sciences has everything students, academics, and researchers in the life and health sciences need to build and apply their knowledge of statistical methods and applications.

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