



## METADATA

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### Abstract

The current book presents basic as well as advanced statistical tools for data analysis. Initially, basic techniques for summarizing data and techniques for checking their randomness, the existence of outliers and their adaptation to a theoretical model (goodness of fit tests) are presented. Next, the most important parametric and nonparametric hypothesis tests are presented. As in many scientific fields the determination of the relationship of dependence between two or more variables is a key objective, reference is provided on regression models (simple, multiple, logistic), as well as to the Analysis of Variance with one and two

factors with repeated or non-repeated measurements. Techniques for analyzing chronological data (time series), lifetime data, and multivariate data are also presented. Finally, the above techniques are implemented through real world applications using the statistical programming language R, with special emphasis on the understanding and interpretation of the results. This book is aimed at undergraduate and postgraduate students, who are following data analysis courses and are asked to select appropriate statistical techniques with the aim of extracting complete and safe conclusions based on a sample for the entire population.

