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Statistical methods in practice. For scientists and technologists.

Hoboken, NJ: John Wiley & Sons (ISBN 978-0-470-74664-6/hbk). xii, 236 p. (2009).

The authors present a practical book on how to apply statistical methods successfully. Consequently, the centrepiece of the book relates to practical applications and less to rigorous mathematical formulations and proofs of statements. The authors concentrate mainly on how to use the methods and to understand what the methods are for. Given this conceptual framework, each chapter starts with a real world example or application from industry or research. Presenting the real world problem first, the authors then discuss statistical methods for analysing the data and, whenever appropriate, discussing the assumptions of the method. The examples are taken from many fields such as chemicals, plastics, oils, nuclear, food, drink, lighting, water and pharmaceuticals. For working through the problems the authors recommend to use the software `CRUNCH`, which can be downloaded free of charge from the publisher, namely `http://www.wiley.com/go/boddy`. The subjects covered in the book relate to exploratory data analysis, significance testing, construction of intervals, the handling and detection of outliers, regression and correlation. The distributions used throughout the book are the Normal distribution, the Binomial distribution, the Poisson distribution, and for testing purposes the Chi-square distribution. Besides the topics of traditional statistics, the authors also contained a chapter about non-parametric statistics, introducing the Wilcoxon-Mann-Whitney test and the Wilcoxon matched-pairs sign test. Slightly more special topics relate to the Cusum analysis for detecting process changes (chapter 16), and to the final chapter 17, which deals with possible problems due to rounding of results. Solutions to problems are given in an additional chapter, and statistical tables can be found at the end of the book. *Herbert S. Buscher (Halle, Saale)*

Classification: K10 K90
Keywords: ANOVA; Cusum analysis; nonparametric statistics; probability distributions; outliers; testing; regression and correlation analysis; exploratory data analysis