To summarize, *Basic Statistics and Data Analysis* is not suitable for students majoring in math, science, and engineering, because of the sparse coverage of statistical topics applicable to these fields. As a general audience text, the book is well written in terms of style and readability. However, the instructor would have to be predisposed to include a heavy dose of nonparametric statistics in an introductory course and plan on presenting clearer guidelines on when such tests are appropriate.

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Statistics for Research (3rd ed.), by Shirley DOWDY, Stanley WEARDEN, and Daniel CHILKO, Hoboken, NJ: Wiley, 2004, ISBN 0-471-26735-X, xvi + 627 pp., $94.95.

Statistics for Research is written to accommodate a two-semester introductory statistical methods course for graduate students coming from various research disciplines in the natural and social sciences. A strong mathematical background is not assumed, and throughout the text mathematical rigor is substituted with a conceptual approach to teaching statistical concepts. However, to stay away from what the authors call a "black box" approach, they do include examples in which the details of the calculations are presented.

There are several additions to the third edition that are worth noting. First, besides discussing SAS software, the authors also discuss the use of JMP, a Windows-based statistical software package developed by the SAS Institute. Second, the authors have added a few sections early in the text that discuss probability concepts. In the previous editions, probability was discussed as needed throughout the text. Third, a section on logistic regression has been added to the last chapter that briefly introduces the idea of maximum likelihood estimation and goes through one detailed example. Finally, other additions include discussions of retrospective studies, risks, odds ratios and repeated-measures studies, the Bonferroni correction, and ratio and difference estimation. There are also additions to the exercises that appear at the end of each section.

The authors do a very nice job by introducing topics with many examples and illustrations. Shortly after a definition is given, an example is sure to follow that makes the idea hit home in a very concrete manner. The exercises at the end of each section are very well thought through and provide the student with a chance to test his or her understanding. I especially like the true–false review exercises at the end of each chapter. One excellent use of the true–false questions would be to have the students write an explanation about why the question is true or false.

The text comprises 14 chapters:

1. The Role of Statistics. Provides a motivational introduction and basic ideas of inferential statistics.
2. Populations, Samples, and Probability Distributions. Covers random variables, probability distributions and expected value; provides many examples.
3. Binomial Distributions. Incorporates the ideas of type I and type II error nicely within testing a hypothesis using a binomial distribution.
4. Poisson Distributions. Motivates the Poisson distribution and shows its approximation to the binomial distribution.
5. Chi-Square Distributions. Focuses on goodness-of-fit tests, tests of homogeneity and independence; discusses relative risks and odds ratios and briefly discusses the nonparametric median test.
6. Sampling Distribution of Averages. Provides a nice discussion of population mean and variance versus the estimated mean and variance.
7. Normal Distributions. Covers the central limit theorem, confidence interval for the mean, approximations to binomial and Poisson distributions, and the nonparametric rank test.
8. Student's t Distribution. Contains a very nice flowchart for different situations depending on whether the interest lies with testing the mean or variance with continuous data or a proportion with discrete data.
9. Distributions of Two Variables. Covers regression and correlation, with a nice section on computer usage using JMP.
10. Techniques for One-Way Analysis of Variance. Provides a very clear discussion on why ANOVA is concerned with variances when testing means and a nice section on multiple comparison techniques.
11. The Analysis-of-Variance Model. Covers the model, assumptions, and transformations.
12. Other Analysis-of-Variance Designs. Discusses nested, randomized complete block, Latin square, factorial, split-plot, and repeated-measures designs.
13. Analysis of Covariance. Provides very nice examples and explanation of the ANCOVA concept, along with an interpretation of SAS output.
14. Multiple Regression and Correlation. Contains a section on logistic regression.

A selected reading section at the end of each chapter contains a fairly good list of reference material. In addition, answers to odd numbered exercises are given in the back of the text, along with many look-up tables (of, e.g., t and F critical values).

In summary, *Statistics for Research* provides material for a solid two-semester introductory statistics course for graduate students in the natural and social sciences. I could see, however, the need for the text material to be supplemented with lab exercises that clearly show how to perform statistical analysis using statistical software beyond what is done in the text with SAS and JMP. The text is easy to read, and students will enjoy the wide range of examples and illustrations. The additions made to the third edition make it a nice improvement over the first and second editions.

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Diagnostic Checks in Time Series, by Wai Kung LI, Boca Raton, FL: Chapman & Hall/CRC, 2004, ISBN 1-58488-337-5, xiii + 196 pp., $69.95.

A researcher expecting to learn about diagnostic checks in time series will be sorely disappointed by this book on two counts, for it is much more narrowly focused than the title suggests. First, it refers only to stationary time series, thus omitting diagnostic tests for cointegrating regressions, for example. Second, it concentrates almost exclusively on portmanteau tests, which constitute only a small subset of all diagnostic tests.

Chapter One (4 pp.) is the introduction. Chapter Two (18 pp.), "Diagnostic Checks for Univariate Linear Models," covers (partial) autocorrelation tests of residuals, with extensions to seasonal autoregressive moving average (ARMA) models and periodic autoregressions. Chapter Three (19 pp.), "The Multivariate Linear Case," addresses vector ARMA models, Granger causality tests, and transfer function noise modeling. Chapter Four (17 pp.), "Robust Modeling and Diagnostic Checking," presents robust varieties of portmanteau and cross-correlation tests. Chapter Five (20 pp.), "Nonlinear Models," considers tests for nonlinear model structure; tests for linear versus specific nonlinear alternatives, goodness-of-fit tests for nonlinear time series, and choosing between different families of nonlinear models. Chapter Six (31 pp.), "Conditional Heteroscedasticity Models," presents autoregressive conditional heteroscedasticity (ARCH) model, tests for the presence of ARCH errors, diagnostic checks for ARCH models both univariate and multivariate, and a test for causality in the variance. Chapter Seven (16 pp.), "Fractionally Differenced Process," considers exact and approximate methods for estimating the parameter of interest, gives a portmanteau test statistic and an example based on tree-ring widths. Chapter Eight (15 pp.), "Miscellaneous Models and Topics," discusses ARMA models with nonnormal errors and other nonnormal time series, the autoregressive conditional duration model, and a power transformation to induce normality.

The text contains several typos, which suggests that the equations are similarly marred by inadequate proofreading. (I did not check the equations for errors.) A researcher who desires a resource for portmanteau tests applied to stationary time series will find the book useful.

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Ranked Set Sampling: Theory and Applications, by Zehua CHEN, Zhidong BAI, and Bimal K. SINHA, New York: Springer-Verlag, 2004, ISBN 0-387-40263-2, xii + 224 pp., $59.95.

This comprehensive and up-to-date monograph covers, systematically and in simple language, the theory and applications of ranked set sampling (RSS), an improved technique related to traditional simple random sampling (SRS). Strong emphasis is placed on theoretical developments in RSS. In the meanwhile, the practical orientation and broad coverage will appeal to researchers and scientists working in sampling techniques, experimental designs, nonparametric statistics, and related fields.