hardware that should alleviate the fears of those students with computer phobia, careful planning will need to be used so that the students do not view the computer as a black box. This is one of the biggest problems, and perhaps one of the easiest traps to fall into, when making heavy use of statistical packages in the laboratory setting. Unfortunately, the students could easily get into this black box mode during the analysis phase with some of the experiments. For example, session 2 illustrates how to construct a boxplot with MINITAB, but there is no discussion of how to interpret a boxplot; session 11 illustrates how to get one-sample confidence intervals and do one-sample t tests, but there is no intuitive discussion of p-value or confidence; session 16 illustrates how to find the regression line, but there is no intuitive discussion of the least squares criterion. I am not criticizing the authors for not including these definitions and intuitive discussions, but I am alerting you to the fact that some extreme care and another source will need to be used to avoid the black box phenomenon.

This leads to my most serious criticism of this manual. The authors and the publisher chose to write the PC version of the manual—there is also a MAC version—using MINITAB for MS-DOS instead of MINITAB for Windows. I think this was a huge mistake. MINITAB Release 10 for Windows has been available since mid-June 1994, and it is a substantial improvement of the earlier releases. An e-mail correspondence with one of the authors suggests that they may work on a Windows version of the manual in the future, but the work is not in progress now. Because many PC users, including myself, have already switched, or are in the process of switching, to the Windows environment, I think the use of this manual will be severely limited. I suppose the manual could be used with MINITAB Release 10 for Windows, but many of the commands in this MS-DOS manual are unnecessary or invalid so it would be very frustrating for the students. Thus I would not recommend mixing the MS-DOS manual with the Windows release.

Returning to some more positive features of the manual, 16 of the 17 sessions contain an extended writing assignment where the students are asked to write a technical report, and all of the sessions have a short answer-writing assignment. The questions in the writing assignments are thought provoking and force the students to carefully explain, in writing, the major concepts and results from the experiment. The questions are not the standard computational questions you find in many introductory books, and I applaud the change. From the student perspective the overview and checklist for technical report writing that are provided in the appendixes will be a welcome addition. A common student complaint is that professors explain what they are looking for in a technical report, but never give the students any concrete examples. The discussion of technical writing provides an outstanding overview with several clear examples of what to do and what not to do in technical reports.

In addition to the standard coverage of basic descriptive statistics, plots, randomization, the central limit theorem, confidence intervals, and basic one-sample inference, some of the sessions include topics that are not typically covered in introductory statistics courses. For example, session 3 leads the students through an author classification problem using basic statistical methods and several discriminators; session 6 deals with traffic flow time series data, and includes some work with moving averages, trends, cycles, and seasonal variation; session 9 uses simulation to compare the sampling distributions of the sample mean and the sample median; sessions 10 and 13 illustrate the basics of the two-way analysis of variance model, including interaction; and several sessions include important topics, such as blocking and nonresponse bias, from design and sampling. Two topics that are typically covered in introductory courses, but do not appear in the sessions, are assessing normality and probability. Many individuals have strong opinions on these two topics so I will let you decide whether the omissions are good or bad.

The last section in each session, Parting Glances, gives the students an appreciation for where the statistical methods can be applied in the "real" world. After a lab dealing with an author classification problem, the authors tell the students that this session was modeled after the classification of authorship for the 12 disputed articles in the Federalist Papers. What a great way to end the session! Also, after a calibration experiment, the authors point out that calibration studies are used by the United States and Russia to monitor nuclear testing. These real-world applications provide the extra spark that some students need to gain an appreciation for the field of statistics.

In summary, if you are looking to get your students more involved in every aspect of statistical analysis and willing to devote some time, energy, and a little money to the necessary setup for the experiments, then this manual deserves serious consideration.

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Introduction to Probability and Statistics (9th ed.).

William MENDENHALL and Robert J. BEAVER. Belmont, CA: Duxbury Press, 1994. xv + 704 pp. $55.95.

The authors intend this text for nonmathematics majors who may not have taken calculus. They emphasize proper use of statistical terms throughout the text, and they explain mathematical notation carefully when they use it. Inside the front cover the text provides, for easy reference, a table of many of the formulas students use frequently. The authors also provide a Student Study Guide and Partial Solutions Manual.

Each chapter begins with an overview that includes a summary of the chapter's case study, a statement of its general objectives, and a list of the specific topics covered. Exercises follow some, but not all, of the chapter sections, and supplementary exercises are given at the end of each chapter. Some chapters also include MINITAB instructions for doing the analyses on the computer. Chapters end with a summary and a one- to two-page case study based on a topic of current interest that is related to the material discussed in the chapter. For example, Chapter 8, "Large-Sample Tests of Hypotheses," ends with a description of the U.S. Physicians' Health Study finding that heart attack risk in men may be cut by taking an aspirin a day.

The text covers all of the standard introductory material in a first course in probability and statistics. This includes graphical and numeric descriptive statistics, probability concepts, the binomial, Poisson, hypergeometric and normal distributions, sampling distributions, large-sample estimates and tests for means and for proportions, small-sample inference, regression and correlation, contingency tables and chi-square tests, analysis of variance through randomized blocks and multiple comparisons of means, and a final chapter on nonparametric tests and Spearman's rank correlation.

The book contains exercises based on applications in several fields, including agriculture, biology, business and economics, chemistry, education, geology, medicine, psychology, sociology, and others. Most exercises have a picture code indicating its field of application. Answers to odd-numbered exercises are provided at the end of the book.

An MS-DOS $3\frac{1}{2}$ inch data disk accompanies the text. It includes many of the data sets used in the exercises, some of the tables in the text, and some of the examples. The data sets are provided in two formats. The DAT directory contains space-delimited ASCII (text) files, and the MTP directory contains MINITAB portable worksheet files. A README file in the root directory explains the file coding and naming conventions. Some of the ASCII files contain variable names on the first line. Others omit the variable names and start with data on the first line. This could be confusing if the student does not know that the two types of data files may need to be read differently, depending on the statistical software used. Version 10 of MINITAB, for example, needs to be told whether the first line of a text file contains data or variable names.

The Preface explains changes, in the ninth edition, from earlier editions. This appears to be a major rewriting of the text, although I have not seen previous editions for comparison. This edition integrates the use of statistical software throughout the text, adds new graphical methods, Bayes' Rule, tree diagrams, and statistical process control material. The data disk and the exercises involving these data sets are also new. The emphasis has been changed from computing statistics to understanding and interpreting them.

Overall, this book is well organized and well written, and should be considered for the noncalculus-based introductory statistics course that plans to include an introduction to probability.

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Environmental Statistics and Data Analysis.

Wayne R. OTT. Boca Raton, FL: CRC Press, Inc., 1995. xi + 313 pp. $69.95.

The purpose of this book is to illustrate the application of basic probabilistic techniques to environmental problems. Ott's book is not another textbook of probability theory; in fact, he begins this book with an