

CONTENTS

SECTION THE FIRST

THE NATURE OF DATA AND STATISTICS

- 1 The Basics 2
- 2 Looking at the Data 7
A First Look at Graphing Data
- 3 Describing the Data with Numbers 19
Measures of Central Tendency and Dispersion
- 4 The Normal Distribution 31
- 5 Probability 37
- 6 Elements of Statistical Inference 46

C.R.A.P. DETECTORS 71

SECTION THE SECOND

ANALYSIS OF VARIANCE

- 7 Comparing Two Groups 78
The t -Test
- 8 More than Two Groups 85
One-Way ANOVA
- 9 Factorial ANOVA 98
- 10 Two Repeated Observations 109
The Paired t -Test and Alternatives
- 11 Repeated-Measures ANOVA 115
- 12 Multivariate ANOVA (MANOVA) 125

C.R.A.P. DETECTORS 136

SECTION
THE THIRD

REGRESSION AND CORRELATION

- 13 Simple Regression and Correlation 140
- 14 Multiple Regression 151
- 15 Logistic and Poisson Regression 169
- 16 Advanced Topics in Regression and ANOVA 181
- 17 Measuring Change 191
- 18 Analysis of Longitudinal Data: Hierarchical Linear Modeling 200
- 19 Principal Components and Factor Analysis 208
 Fooling Around with Factors
- 20 Path Analysis and Structural Equation Modeling 226

C.R.A.P. DETECTORS 245

SECTION
THE FOURTH

NON-PARAMETRIC STATISTICS

- 21 Tests of Significance for Categorical Frequency Data 251
- 22 Measures of Association for Categorical Data 269
- 23 Tests of Significance for Ranked Data 276
- 24 Measures of Association for Ranked Data 284
- 25 Survival Analysis 292
- 26 Measures of Impact 308
 Introductory Side Bar

C.R.A.P. DETECTORS 316

REPRISE

- 27 Equivalence and Non-Inferiority Testing 322
- 28 Screwups, Oddballs, and Other Vagaries of Science 328
Locating Outliers, Handling Missing Data, and Transformations
- 29 Putting It All Together 340
- 30 Getting Started with SPSS 347
- Test Yourself (Being a Compendium of Questions and Answers) 358
- Answers to Chapter Exercises 363
- References and Further Reading 374
- An Unabashed Glossary of Statistical Terms 384
- Appendix 386
- Index 410