Contents

Preface viii

1 Variables, Research Problems and Questions 1
- Research Problems
- Variables
- Research Hypotheses and Questions
- A Sample Research Problem: The Modified High School and Beyond (HSB) Study
- Interpretation Questions

2 Data Coding, Entry, and Checking 15
- Plan the Study, Pilot Test, and Collect Data
- Code Data for Data Entry
- Problem 2.1. Check the Completed Questionnaires
- Problem 2.2. Define and Label the Variables
- Problem 2.3. Display Your Dictionary or Codebook
- Problem 2.4. Enter Data
- Problem 2.5. Run Descriptive and Check the Data
- Interpretation Questions
- Extra SPSS Problems

3 Measurement and Descriptive Statistics 36
- Frequency Distributions
- Levels of Measurement
- Descriptive Statistics and Plots
- The Normal Curve
- Interpretation Questions

4 Understanding Your Data and Checking Assumptions 51
- Exploratory Data Analysis (EDA)
- Problem 4.1. Descriptive Statistics for the Ordinal and Scale Variables
- Problem 4.2. Box Plots for One Variable and Multiple Variables
- Problem 4.3. Box Plots Split by a Dichotomous Variable
- Problem 4.4. Descriptives for Dichotomous Variables
- Problem 4.5. Frequency Tables a few Variables
- Interpretation Questions
- Extra SPSS Problems

5 Data File Management. 69
- Problem 5.1. Count Math Courses Taken
- Problem 5.2. Recode and Relabel, Mother's and Father's Education
- Problem 5.3. Recode and Compute Pleasure Scale Score
- Problem 5.4. Compute Parent's Revised Education with the Mean Command
- Problem 5.5. Check for Errors and Normality for a Few Variables
- Saving the Updated HSB Data File
- Interpretation Questions
- Extra SPSS Problems

6 Selecting and Interpreting Inferential Statistics 80
General Design Classifications for the Difference Questions
Selection of Inferential Statistics
The General Linear Model
Interpreting the Results of a Statistical Test
An Example of How to Select and Interpret Inferential Statistics
Writing About your Outputs
Conclusion
Interpretation Questions

7 Cross Tabulation, Chi-Square, and Nonparametric Measures of Association 99
Problem 7.1. Chi-square and Phi (or Cramer's V)
Problem 7.2. Other (Nonparametric) Associational Statistics
Problem 7.3. Cross-tabulation and Eta
Problem 7.4. Cohen's Kappa for Reliability with Nominal Data
Interpretation Questions
Extra SPSS Problems

8 Correlation and Regression 111
Problem 8.1. Scatterplots to Check Assumptions
Problem 8.2. Bivariate Pearson and Spearman Correlations
Problem 8.3. Correlation Matrix for Several Variables
Problem 8.4. Internal Consistency Reliability with Cronbach's Alpha
Problem 8.5. Bivariate or Simple Linear Regression
Problem 8.6. Multiple Regression
Interpretation Questions
Extra SPSS Problems

9 Comparing Groups with *t* Tests and Similar Nonparametric Tests 134
Problem 9.1. One-Sample *t* Test
Problem 9.2. Independent Samples *t* Test
Problem 9.3. The Nonparametric Mann-Whitney *U* Test
Problem 9.4. Paired Samples *t* Test
Problem 9.5. Using the Paired *t* Test to Check Reliability
Problem 9.6. Nonparametric Wilcoxon Test for Two Related Samples
Interpretation Questions
Extra SPSS Problems

10 Analysis of Variance (ANOVA) 148
Problem 10.1. One-Way (or Single Factor) ANOVA
Problem 10.2. Post Hoc Multiple Comparisons Tests
Problem 10.3. Nonparametric Kruskal-Wallis Test
Problem 10.4. Two-Way (or Factorial) ANOVA
Interpretation Questions
Extra SPSS Problems

Appendices

A. Quick Reference Guide to SPSS Procedures
Joan Naden Clay and Laura Jensen 165
B. Writing Research Problems and Questions 176
C. Getting Started with SPSS and Printing the Syntax 180
D. Making Tables and Figures
Don Quick 184
E. Answers to Odd Numbered Interpretation Questions 197

For Further Reading 206
Index 207