Detailed Contents

Preface	xiii
Acknowledgments About the Author	xvii
	xix
Chapter 1: A Review of Basic Statistical Concepts	1
Introduction	1
How Numbers and Language Revolutionized	
Human History	2
Descriptive Statistics	5
Central Tendency and Dispersion	6
The Shape of Distributions	9
Inferential Statistics	13
Probability Theory	16
A Study of Cheating	20
Things That Go Bump in the Light: Factors That Influence	
the Results of Significance Tests	24
Alpha Levels and Type I and II Errors	24
Effect Size and Significance Testing	25
Measurement Error and Significance Testing	25
Sample Size and Significance Testing	26
Restriction of Range and Significance Testing	26
The Changing State of the Art: Alternate Perspectives	
on Statistical Hypothesis Testing	28
Estimates of Effect Size	28
Meta-Analysis	31
Summary	33
Appendix 1.1: Some Common Statistical Tests and Their Uses	34
Notes	42
Chapter 2: Descriptive Statistics	45
The Very Small Survey of Moderately Large Shoe Sizes	46
Estimating Spending in the U.S. Population	51
Missing Data and Variable Values	52
Describing the Ethnic Diversity of U.S. States	55
Descriptive Statistics in Public Opinion Polls	64

Shape Matters: The Normal Distribution,	
Skewness, and Kurtosis	67
Sometimes Shape Really Matters	74
How Much Skewness or Kurtosis Is Too Much (or Too Little)?	77
Correcting for Skewness and Kurtosis	78
For Further Thought	79
Chapter 3: Linear and Curvilinear Correlation	81
Introduction: A Brief Tribute to Karl Pearson	81
A Hypothetical Study of How Unfair Life Is	82
A Hypothetical Correlational Study of Afrocentrism A Study of Freedom of the Press and Perceived	90
Corruption in Europe	91
The Power of Impossible Outliers	93
A Look at Brandeis's Hypothesis Through a Curved Lens	96
Appendix 3.1: A Primer for Predicting Scores on Y	50
From Scores on X	100
Chapter 4: Nonparametric Statistics (Tests Involving	
Nominal Variables)	101
Introduction: The Correlation Coefficient's Nominal Cousins	101
A Pilot Study of Name-Letter Preferences	102
A Second Pilot Study of Name-Letter Preferences	107
The Chi-Square Statistic, Phi Coefficients, and Odds Ratios	113
A Correlational Study of Interpersonal Attraction	116
A Small Change of Pace: From Marriage to Mental Illness How to Report the Results of a Chi-Square Analysis	118
of Nominal Variables	120
Appendix 4.1: How to Report the Results of a	
Chi-Square Analysis	121
Notes	123
Chapter 5: Reliability (and a Little Bit of Factor Analysis)	125
Chapter Overview	125
Introduction: The Concept of Reliability	126
"Just the Factors, Ma'am"	127
Caveats Regarding Real Data	131
Principal Components Analysis With Real Data	133
Checking Out the Eigenvalues	135
Reliability Analysis	138
Adding Items Together to Make a Scale	140
A Comparison of Cronbach's Alpha and Split-Half Reliability Applying What You Learned to a Hypothetical Study	142
of Self-Esteem	143
A Return to Extraversion: Reliability Analysis as a Tool	
for Item Development	145
Limitations of Cronbach's Alpha	149
Appendix 5.1: Why Psychological Scales Are More Reliable	.
Than the Average of Their Imperfectly Reliable Components	152

Appendix 5.2: Reporting the Results of a Factor Analysis	
and a Reliability Analysis	157
Notes	160
Chantor 6. Single Sample and Two Sample & Toots	161
Chapter 6: Single-Sample and Two-Sample <i>t</i> Tests Introduction	161
	163
Bending the Rules About Happiness	
Simplifying the Outcome	166
The Independent Samples (Two-Samples) t Test	171
Results of the Teacher Expectancy Study	173
More Simplification	173
Yet Another Name-Letter Preference Study	174
An Archival Study of Heat and Aggression	176
A Blind Cola Taste Test	177
Appendix 6.1: Reporting the Results of One-Sample	
and Two-Sample t Tests	181
Appendix 6.2 Some Useful SPSS Syntax Statements	
and Logical Operands	183
Appendix 6.3: Running a One-Sample Chi-Square	
Test in Older Versions of SPSS (SPSS 19 or Earlier)	189
Chapter 7: One-Way and Factorial Analysis of Variance (ANOVA)	191
Introduction: The Trouble With Levels	191
Understanding One-Way ANOVAs by Experimenting	
With Alcohol	193
Finding Meaning in Means: Using Contrasts	195
Looking at More Than One Independent Variable:	133
Factorial ANOVAs	198
A Hypothetical Example of When and How "It Depends"	201
More Practice Understanding Main Effects and Interactions	205
Practice Study 1: A Lab Study of Aggression Among Kids	205
Practice Study 1: A Lab Study of Aggression Among Rius Practice Study 2: A Lab Study of Self-Pay	206
	207
Three-Way ANOVAs and Beyond	
Putting It All Together Appendix 7.1. Possults of a Unique Memory Study	209
Appendix 7.1: Results of a Unique Memory Study That Used Planned Contrasts	210
mat Osed Planned Contrasts	210
Chapter 8: Within-Subjects and Mixed Model Analyses	213
Introduction: Controlling for Individual Differences	213
Some Bogus Within-Subjects Studies of Bogus Traits	214
Examining Three Within-Subjects Versions of	
the Same Study	215
Combining Between-Subjects and Within-Subjects	
Designs: Mixed Model Designs	218
A Repeated Measures Study of Optimism With Countries	
as the Unit of Analysis	220
A Mixed Model Study of Implicit Political Attitudes	226
Appendix 8.1: Sample Results of a Study Using a Mixed	
Model Design	229
U	

Chapter 9: Multiple Regression	231
Introduction: Ceteris Paribus	231
Predictor Variables and Criterion Variables	232
The Logic of Multiple Regression Analysis	233
Considering More Data	235
Checking Your Answers in SPSS	236
Correlation, Multiple Regression, and Multiple	
Predictor Variables	239
R-Square, Adjusted R-Square, and Standard Errors	
in Multiple Regression	242
A Real-World Multiple Regression Application	248
Logistic Regression: Multiple Regression Analysis	
With Categorical Criterion Variables	251
Back to Missing Cookies	253
Logistic Regression Analysis of Cookie Thefts:	
Disentangling Bart and Fred	253
Understanding Odds Ratios in Logistic Regression	256
Misunderstanding Odds Ratios in Logistic Regression	257
Back to Missing Cookies	258
Confidence Intervals in Logistic Regression	259
It Sure Is Messy Out There: Multivariate Data Cleaning	259
Appendix 9.1: Terms for Further Reading or Discussion	261
Chapter 10: Examining Interactions in Multiple	
Regression Analysis	263
Introduction: Type of Variable Determines Type of Analysis	263
Moderators and Interactions in Multiple Regression	264
A More Realistic Example: Centering and Simple Slopes	204
Tests in Multiple Regression Analysis	268
Beyond Median Splits: Isolating and Analyzing Subgroups	200
in Multiple Regression	272
Some Practice With Real Data	273
More Real Practice Data	275
Important Moderator Effects Sometimes Add Minimally	273
to R-Square Values	276
Examining Interactions Between Categorical and Continuous	2, 0
Predictors in Multiple Regression	279
Why Does This Technique for Estimating Simple	273
Slopes Work?	283
It's Not Easy Studying Green: Dealing With Interactions	200
Involving Categorical Predictors With More	
Than Two Levels	287
Appendix 10.1: Testing for and Interpreting Three-Way	
Interactions in Multiple Regression	294
Appendix 10.2: An Example of How to Report the	
Results of a Two-Way Interaction in	
Multiple Regression	300
Notes	301

Chapter 11: ANCOVA, Covariate-Adjusted Means, and	
Predicted Scores	303
Introduction: Ends to a Mean	303
The Analysis of Covariance (ANCOVA)	304
Data Set 1: Gender Differences in Income	305
The Ghosts in the Machine: Generating Predicted Scores	
in a Multiple Regression Analysis	309
Data Set 2: Political Party Affiliation and Attitudes Data Set 3: A Survey of Smoking and Well-Being	312 312
Chapter 12: Suppressor Variables	315
Introduction: Multiple Regression and Suppression	315
Uncovering Causes: Attribution Theory and Suppression	317
A Practice Example of Suppression: Running and Squatting	318
Practice With Suppression: Three Data Sets to Analyze	320
Data Set 1: Anagram Difficulty and Self-Pay	321
Data Set 2: Predicting Voting Behavior	322
Data Set 3: Predicting Homicide Rates From	
Country-Level Statistics	323
A Cautionary Note Regarding Multicollinearity	323
Coda: Why Suppression?	324
Note	324
Chapter 13: Mediation and Path Analysis	325
Introduction: Disentangling Competing Causes	325
Third Variables Versus Causal Starting Points	326
Causal Plausibility	328
Empirical Plausibility	331
Moderation in All Things—Except for Mediation	333
A Mediational Model of How Frustration Leads to Aggression Formal Testing for the Significance of Mediation Requires	334
Knowledge of Standard Errors	337
What Mediates the Association Between Self-Esteem	
and Relationship Satisfaction?	339
Mediation Analysis as a Specific Case of Path Analysis	341
The Logic of Path Analysis A Hypothetical Path Model Involving Positive Beliefs	343
and Health	347
For Further Reading	349
Useful Web Pages	350
Appendix 13.1: An Analysis of Teasing From Kruger, Gordon, and Kuban (2006)	351
Notes	353
Chapter 14: Data Cleaning	355
Introduction: Data Cleaning	355
Missing Data	357
That's Not Normal: Outliers	368
Identifying and Dealing With Univariate Outliers	371

Identifying and Dealing With Multivariate Outliers	371
Putting Your Data-Cleaning Skills to Work	380
A Final Worry: Multicollinearity	383
For Further Reading	383
Appendix 14.1: An Illustration of Multicollinearity	384
Chapter 15: Data Merging and Data Management	387
Chapter 16: Avoiding Bias: Characterizing Without Capitalizing Introduction: Some Common Errors and Biases in	395
Human Thinking	395
Confirmatory Biases + Human Statisticians = Statistical Bias	399
Phineas and Ferb Are Just the Tip of the Iceberg	401
Four Simple Rules for Avoiding Bias in Data Analysis	405
References	407
Author Index	413
Subject Index	417