CONTENTS

Series Editor's Introduction v

1. **Linear Regression and the Logistic Regression Model** 1
   - Regression Assumptions 4
   - Nonlinear Relationships and Variable Transformations 10
   - Probabilities, Odds, Odds Ratios, and the Logit Transformation for Dichotomous Dependent Variables 12
   - Logistic Regression: A First Look 14

2. **Summary Statistics for Evaluating the Logistic Regression Model** 17
   - R^2, F, and Sums of Squared Errors 18
   - Goodness of Fit: G_M, R^2_L, and the Log-Likelihood 19
   - Predictive Efficiency: λ_p, τ_p, ϕ_p, and the Binomial Test 24
   - Examples: Assessing the Adequacy of Logistic Regression Models 32
   - Conclusion: Summary Measures for Evaluating the Logistic Regression Model 36

3. **Interpreting the Logistic Regression Coefficients** 37
   - Statistical Significance in Logistic Regression Analysis 38
   - Interpreting Unstandardized Logistic Regression Coefficients 43
   - Substantive Significance and Standardized Coefficients 44
   - Odds Ratios 49
   - More on Categorical Predictors: Contrasts and Interpretation 50
   - Interaction Effects 52
   - Stepwise Logistic Regression 54

4. An Introduction to Logistic Regression Diagnostics 58
Specification Error 58
Collinearity 65
Numerical Problems: Zero Cells and Complete Separation 67
Analysis of Residuals 71
A Suggested Protocol for Logistic Regression Diagnostics 77

5. Polytomous Logistic Regression and Alternatives to Logistic Regression 80
Polytomous Nominal Dependent Variables 82
Polytomous or Multinomial Ordinal Dependent Variables 86
Conclusion: Polytomous Dependent Variables and Logistic Regression 88
Conclusion 90

Notes 92

Appendix A: Probabilities 95

References 96

About the Author 98