CONTENTS

	Prefe	ace		xi	
ι.	BASIC CONCEPTS AND MEASURES				
	1.	Statistics in the Research Process			
		1.1	Ideas into Research Projects	5	
		1.2	Concepts into Propositions	9	
		1.3	Variables into Hypotheses	11	
		1.4	Observations into Records	14	
		1.5	Data into Numbers	16	
		1.6	Statistical Analysis	18	
		1.7	The General Linear Model	22	
	2.	Describing Variables			
		2.1	Frequency Distributions for Discrete and Continuous Variables	29	
		2.2	Grouped and Cumulative Distributions	34	
		2.3	Graphing Frequency Distributions	37	
		2.4	Measures of Central Tendency	40	
		2.5	Measures of Dispersion	46	
		2.6	Percentiles and Quantiles	53	
		2.7	Standardized Scores (Z Scores)	56	
		2.8	Exploratory Data Analysis Methods for Displaying Continuous Data	60	

II. STATISTICAL INFERENCE

	3.	Ma	king Statistical Inferences	69	
		3.1	Drawing Inferences About Populations from Samples	69	
		3.2	Some Basic Probability Concepts	70	
		3.3	Chebycheff's Inequality Theorem	73	
		3.4	The Normal Distribution	75	
		3.5	The Central Limit Theorem	80	
		3.6	Sample Point Estimates and Confidence Intervals	81	
		3.7	The t Distribution	85	
		3.8	Hypothesis Testing	88	
		3.9	Testing Hypotheses About Single Means	91	
		3.10	Properties of Estimators	101	
		3.11	The Chi-Square and F Distributions	102	
ш.	ANALYZING BIVARIATE RELATIONSHIPS				
	4.	An	alysis of Variance	111	
		4.1	The Logic of ANOVA	111	
		4.2	ANOVA Tables: Sums of Squares, Mean Squares, F Ratio	114	
		4.3	Tests for Two Means	121	
		4.4	The Correlation Ratio: Eta-Squared	131	
		4.5	Testing Differences Among Means (Post Hoc)	132	
	5.	An	alyzing Categoric Data	139	
		5.1	Bivariate Crosstabulation	139	
		5.2	Using Chi-Square to Test Significance	142	
		5.3	Measuring Association: Q , Phi, Gamma, Tau c , Somers's d_{yx}	147	
		5.4	Odds and Odds Ratios	159	
	6.	Biv	ariate Regression and Correlation	169	
		6.1	Scatterplots and Regression Lines	169	
		6.2	Estimating a Linear Regression Equation	174	
		6.3	R-Square and Correlation	182	
		6.4	Significance Tests for Regression Parameters	187	

		6.5	Standardizing Regression Coefficients	194		
		6.6	Comparing Two Regression Equations	198		
IV.	Multivariate Models					
	7.	The	e Logic of Multivariate Contingency Analysis	207		
		7.1	Controlling Additional Variables	208		
		7.2	Controlling for a Third Variable in 2 x 2 Tables	213		
		7.3	The Partial Correlation Coefficient	223		
	8.	Mu	Itiple Regression Analysis	235		
		8.1	An Example of a Three-Variable Regression Problem	236		
		8.2	The Three-Variable Regression Model	240		
1		8.3	Multiple Regression with K Independent Variables	255		
		8.4	Significance Tests for Parameters	263		
		8.5	Comparing Nested Equations	270		
		8.6	Dummy Variable Regression: ANCOVA with Interactions	271		
		8.7	Comparisons Across Populations	278		
	9.	No	nlinear and Logistic Regression	287		
		9.1	Nonlinear Regression	288		
		9.2	Dichotomous Dependent Variables	297		
		9.3	The Logistic Transformation and Its Properties	299		
		9.4	Estimating and Testing Logistic Regression Equations	307		
		9.5	The Multinomial-Logit Model	314		
v.	ADVANCED TOPICS					
	10.	Log	g-Linear Analysis	327		
		10.1	Log-Linear Models for 2 x 2 Tables -	328		
		10.2	Log-Linear Models for Three-Variable Tables	337		
		10.3	More Complex Models	349		
		10.4	Special Topics in Log-Linear Analysis	355		
	11.	Ca	usal Models and Path Analysis	371		
		11.1	Causal Assumptions	371		

	11.2	Causal Diagrams	374
	11.3	Path Analysis	377
12.	Stru	405	
	12.1	Review of Correlation and Covariance	406
	12.2	Reliability and Validity in Measurement Theory	408
	12.3	Factor Analysis	414
	12.4	Multiple-Indicator Causal Models	426
	12.5	Models with Ordered Indicators	434
Ар	PEND	ICES	
A.	The	449	
B.	Crit	ical Values of Chi Square (table)	457
C.	Area	as Under the Normal Curve (table)	459
D.	Stud	lent's t Distribution (table)	465
E.	F Di	istribution (table)	467
F.	Fish	er's r-to-Z Transformation (table)	471
Glos	sary of	fTerms	473
List o	of Math	hematical and Statistical Symbols	487
Ansu	vers to	Problems	495
Inde:	r		523