

TABLE OF CONTENTS

Licensing

About this Book

1: Types of Statistical Studies and Producing Data

- 1.1: Why It Matters- Types of Statistical Studies and Producing Data
- 1.2: Introduction to Types of Statistical Studies
- 1.3: Types of Statistical Studies (1 of 4)
- 1.4: Types of Statistical Studies (2 of 4)
- 1.5: Types of Statistical Studies (3 of 4)
- 1.6: Types of Statistical Studies (4 of 4)
- 1.7: Introduction to Sampling
- 1.8: Sampling (1 of 2)
- 1.9: Sampling (2 of 2)
- 1.10: Introduction to Conducting Experiments
- 1.11: Conducting Experiments (1 of 2)
- 1.12: Conducting Experiments (2 of 2)
- 1.13: Putting It Together- Types of Statistical Studies and Producing Data

2: Summarizing Data Graphically and Numerically

- 2.1: Why It Matters- Summarizing Data Graphically and Numerically
- 2.2: Standard Deviation (1 of 4)
- 2.3: Standard Deviation (2 of 4)
- 2.4: Standard Deviation (3 of 4)
- 2.5: Standard Deviation (4 of 4)
- 2.6: Putting It Together- Summarizing Data Graphically and Numerically
- 2.7: StatTutor- Drinking Habits of College Students
- 2.8: Assignment- Histogram
- 2.9: Assignment- Five-Number Summary
- 2.10: Assignment- Boxplot
- 2.11: Assignment- Standard Deviation
- 2.12: Introduction to Categorical vs. Quantitative Data
- 2.13: Categorical vs. Quantitative Data
- 2.14: Introduction to Dotplots
- 2.15: Dotplots (1 of 2)
- 2.16: Dotplots (2 of 2)
- 2.17: Introduction to Histograms
- 2.18: Histograms (1 of 4)
- 2.19: Histograms (2 of 4)
- 2.20: Histograms (3 of 4)
- 2.21: Histograms (4 of 4)
- 2.22: Introduction to Measures of Center
- 2.23: Mean and Median (1 of 2)
- 2.24: Mean and Median (2 of 2)
- 2.25: Introduction to Measures of Spread
- 2.26: Interquartile Range and Boxplots (1 of 3)
- 2.27: Interquartile Range and Boxplots (2 of 3)

- 2.28: Interquartile Range and Boxplots (3 of 3)
- 2.29: Introduction to Describing a Distribution

3: Examining Relationships- Quantitative Data

- 3.1: Why It Matters- Examining Relationships- Quantitative Data
- 3.2: Linear Regression (4 of 4)
- 3.3: Introduction to Assessing the Fit of a Line
- 3.4: Assessing the Fit of a Line (1 of 4)
- 3.5: Assessing the Fit of a Line (2 of 4)
- 3.6: Assessing the Fit of a Line (3 of 4)
- 3.7: Assessing the Fit of a Line (4 of 4)
- 3.8: Putting It Together- Examining Relationships- Quantitative Data
- 3.9: StatTutor- Academic Performance
- 3.10: Assignment- Scatterplot
- 3.11: Assignment- Linear Relationships
- 3.12: Introduction to Scatterplots
- 3.13: Assignment- Linear Regression
- 3.14: Scatterplots (1 of 5)
- 3.15: Scatterplots (2 of 5)
- 3.16: Scatterplots (3 of 5)
- 3.17: Scatterplots (4 of 5)
- 3.18: Scatterplots (5 of 5)
- 3.19: Introduction to Linear Relationships
- 3.20: Linear Relationships (1 of 4)
- 3.21: Linear Relationships (2 of 4)
- 3.22: Linear Relationships (3 of 4)
- 3.23: Linear Relationships (4 of 4)
- 3.24: Introduction to Association vs Causation
- 3.25: Causation and Lurking Variables (1 of 2)
- 3.26: Causation and Lurking Variables (2 of 2)
- 3.27: Introduction to Linear Regression
- 3.28: Linear Regression (1 of 4)
- 3.29: Linear Regression (2 of 4)
- 3.30: Linear Regression (3 of 4)

4: Nonlinear Models

- 4.1: Why It Matters- Nonlinear Models
- 4.2: Introduction to Exponential Relationships
- 4.3: Exponential Relationships (1 of 6)
- 4.4: Exponential Relationships (2 of 6)
- 4.5: Exponential Relationships (3 of 6)
- 4.6: Exponential Relationships (4 of 6)
- 4.7: Exponential Relationships (5 of 6)
- 4.8: Exponential Relationships (6 of 6)
- 4.9: Putting It Together- Nonlinear Models

5: Relationships in Categorical Data with Intro to Probability

- 5.1: Why It Matters- Relationships in Categorical Data with Intro to Probability
- 5.2: Introduction to Two-Way Tables
- 5.3: Two-Way Tables (1 of 5)
- 5.4: Two-Way Tables (2 of 5)

- 5.5: Two-Way Tables (3 of 5)
- 5.6: Two-Way Tables (4 of 5)
- 5.7: Two-Way Tables (5 of 5)
- 5.8: Putting It Together- Relationships in Categorical Data with Intro to Probability
- 5.9: StatTutor- Treating Depression- A Randomized Clinical Trial

6: Probability and Probability Distributions

- 6.1: Why It Matters- Probability and Probability Distributions
- 6.2: Normal Random Variables (2 of 6)
- 6.3: Normal Random Variables (3 of 6)
- 6.4: Normal Random Variables (4 of 6)
- 6.5: Normal Random Variables (5 of 6)
- 6.6: Normal Random Variables (6 of 6)
- 6.7: Putting It Together- Probability and Probability Distribution
- 6.8: Introduction to Another Look at Probability
- 6.9: Another Look at Probability (1 of 2)
- 6.10: Another Look at Probability (2 of 2)
- 6.11: Introduction to Probability Rules
- 6.12: Probability Rules (1 of 3)
- 6.13: Probability Rules (2 of 3)
- 6.14: Probability Rules (3 of 3)
- 6.15: Introduction to Discrete Probability Distribution
- 6.16: Discrete Random Variables (1 of 5)
- 6.17: Discrete Random Variables (2 of 5)
- 6.18: Discrete Random Variables (3 of 5)
- 6.19: Discrete Random Variables (4 of 5)
- 6.20: Discrete Random Variables (5 of 5)
- 6.21: Introduction to Continuous Probability Distribution
- 6.22: Continuous Probability Distribution (1 of 2)
- 6.23: Continuous Probability Distribution (2 of 2)
- 6.24: Introduction to Normal Random Variables
- 6.25: Normal Random Variables (1 of 6)

7: Linking Probability to Statistical Inference

- 7.1: Why It Matters- Linking Probability to Statistical Inference
- 7.2: Introduction to Distribution of Sample Proportions
- 7.3: Parameters vs. Statistics
- 7.4: Distribution of Sample Proportions (1 of 6)
- 7.5: Distribution of Sample Proportions (2 of 6)
- 7.6: Distribution of Sample Proportions (3 of 6)
- 7.7: Distribution of Sample Proportions (4 of 6)
- 7.8: Distribution of Sample Proportions (5 of 6)
- 7.9: Distribution of Sample Proportions (6 of 6)
- 7.10: Introduction to Statistical Inference
- 7.11: Statistical Inference (1 of 3)
- 7.12: Statistical Inference (2 of 3)
- 7.13: Statistical Inference (3 of 3)
- 7.14: Putting It Together- Linking Probability to Statistical Inference

8: Inference for One Proportion

- 8.1: Why It Matters- Inference for One Proportion
- 8.2: Introduction to Estimating a Population Proportion
- 8.3: Estimating a Population Proportion (1 of 3)
- 8.4: Estimating a Population Proportion (2 of 3)
- 8.5: Estimating a Population Proportion (3 of 3)
- 8.6: Introduction to Hypothesis Testing
- 8.7: Hypothesis Testing (1 of 5)
- 8.8: Hypothesis Testing (2 of 5)
- 8.9: Hypothesis Testing (3 of 5)
- 8.10: Hypothesis Testing (4 of 5)
- 8.11: Hypothesis Testing (5 of 5)
- 8.12: Introduction to Hypothesis Test for a Population Proportion
- 8.13: Hypothesis Test for a Population Proportion (1 of 3)
- 8.14: Hypothesis Test for a Population Proportion (2 of 3)
- 8.15: Hypothesis Test for a Population Proportion (3 of 3)
- 8.16: Putting It Together- Inference for One Proportion
- 8.17: StatTutor- Cell Phones
- 8.18: Assignment- Hypothesis Testing for the Population Proportion p

9: Inference for Two Proportions

- 9.1: Why It Matters- Inference for Two Proportions
- 9.2: Assignment- A Statistical Investigation using Software
- 9.3: Introduction to Distribution of Differences in Sample Proportions
- 9.4: Distribution of Differences in Sample Proportions (1 of 5)
- 9.5: Distribution of Differences in Sample Proportions (2 of 5)
- 9.6: Distribution of Differences in Sample Proportions (3 of 5)
- 9.7: Distribution of Differences in Sample Proportions (4 of 5)
- 9.8: Distribution of Differences in Sample Proportions (5 of 5)
- 9.9: Introduction to Estimate the Difference Between Population Proportions
- 9.10: Estimate the Difference between Population Proportions (1 of 3)
- 9.11: Estimate the Difference between Population Proportions (2 of 3)
- 9.12: Estimate the Difference between Population Proportions (3 of 3)
- 9.13: Introduction to Hypothesis Test for Difference in Two Population Proportions
- 9.14: Hypothesis Test for Difference in Two Population Proportions (1 of 6)
- 9.15: Hypothesis Test for Difference in Two Population Proportions (2 of 6)
- 9.16: Hypothesis Test for Difference in Two Population Proportions (3 of 6)
- 9.17: Hypothesis Test for Difference in Two Population Proportions (4 of 6)
- 9.18: Hypothesis Test for Difference in Two Population Proportions (5 of 6)
- 9.19: Hypothesis Test for Difference in Two Population Proportions (6 of 6)
- 9.20: Putting It Together- Inference for Two Proportions

10: Inference for Means

- 10.1: Why It Matters- Inference for Means
- 10.2: Hypothesis Test for a Difference in Two Population Means (2 of 2)
- 10.3: Estimating the Difference in Two Population Means
- 10.4: Putting It Together- Inference for Means
- 10.5: StatTutor- Analyzing Data From a Course's Grade Book
- 10.6: Assignment- Distribution of Sample Means
- 10.7: Assignment- Connection between Confidence Intervals and Sampling Distributions
- 10.8: Assignment- Hypothesis Testing for the Population Mean

- 10.9: Assignment- Matched Pairs
- 10.10: Assignment- Checking Conditions
- 10.11: Assignment- Two Independent Samples
- 10.12: Introduction to Distribution of Sample Means
- 10.13: Distribution of Sample Means (1 of 4)
- 10.14: Distribution of Sample Means (2 of 4)
- 10.15: Distribution of Sample Means (3 of 4)
- 10.16: Distribution of Sample Means (4 of 4)
- 10.17: Introduction to Estimating a Population Mean
- 10.18: Estimating a Population Mean (1 of 3)
- 10.19: Estimating a Population Mean (2 of 3)
- 10.20: Estimating a Population Mean (3 of 3)
- 10.21: Introduction to Hypothesis Test for a Population Mean
- 10.22: Hypothesis Test for a Population Mean (1 of 5)
- 10.23: Hypothesis Test for a Population Mean (2 of 5)
- 10.24: Hypothesis Test for a Population Mean (3 of 5)
- 10.25: Hypothesis Test for a Population Mean (4 of 5)
- 10.26: Hypothesis Test for a Population Mean (5 of 5)
- 10.27: Introduction to Inference for a Difference in Two Population Means
- 10.28: Inference for a Difference in Two Population Means
- 10.29: Hypothesis Test for a Difference in Two Population Means (1 of 2)

11: Chi-Square Tests

- 11.1: Why It Matters- Chi-Square Tests
- 11.2: Introduction to Chi-Square Test for One-Way Tables
- 11.3: Goodness-of-Fit (1 of 2)
- 11.4: Goodness-of-Fit (2 of 2)
- 11.5: Introduction to Chi-Square Tests for Two-Way Tables
- 11.6: Test of Independence (1 of 3)
- 11.7: Test of Independence (2 of 3)
- 11.8: Test of Independence (3 of 3)
- 11.9: Test of Homogeneity
- 11.10: Putting It Together- Chi-Square Tests
- 11.11: StatTutor- Risk Factors for Low Birth Weight
- 11.12: Assignment- Test of Independence Using Technology
- 11.13: Assignment- Using Technology with Data to Run a Hypothesis Test

12: Appendix

- 12.1: Faculty Resources Overview
- 12.2: Pacing
- 12.3: PDF
- 12.4: PowerPoints
- 12.5: Assignments
- 12.6: Question Banks
- 12.7: Additional Resources
- 12.8: I Need Help
- 12.9: About This Course
- 12.10: Course Contents at a Glance
- 12.11: Learning Outcomes

[Index](#)

[Glossary](#)

[Glossary](#)

[Detailed Licensing](#)