

1. Record Nr.	UNINA9910437878003321
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Titolo	Applied Statistics for Business and Management using Microsoft Excel / / by Linda Herkenhoff, John Fogli
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2013
ISBN	1-4614-8423-5
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (XIV, 417 p. 620 illus., 569 illus. in color.)
Disciplina	330.015195
Soggetti	Statistics Statistics and Computing/Statistics Programs Statistics for Business, Management, Economics, Finance, Insurance Statistics, general
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
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-- Change Labels on x-axis -- Removing More from the Chart and Labeling the Last Column -- Remove Legend -- Axes Labels -- Moving Axes Labels -- Changing the Bar Color -- Changing Chart Title -- Changing Chart Background Fill -- Rotating the y-axis Label from Vertical to Horizontal -- Common Pitfalls -- Final Thoughts and Activities -- Practice Problems -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 4: Normal Distributions.

Key Concepts -- Discussion -- Excel -- Outline placeholder -- 1. Percentile Calculation Problems (NORM.DIST) -- (a) Calculating the area to the left of a value -- What % of the Time Did You Deliver to Less Than ( ) 90 Stores During Last December and January? In Other Words How Much Data Is... -- (b) Calculating the area between 2 values -- What % of the Time Did You Deliver Fire Logs to Between 90 and 120 Stores During Last December and January? -- (c) Calculating the area to the right of a value -- What % of Time Did You Deliver to 130 or More Stores (  $\geq$  ) During Last December and January? In Other Words How Much Da... -- (d) Graphing a normal distribution (Area Graph) -- Step 1 -- Step 2 -- Step 3 -- 2. Converting Percentiles to Measured Units (NORM.INV) -- Calculate the Number of Stores Corresponding with the 99th Percentile -- 3. Converting Measured Units to z-Scores (STANDARDIZE) -- Convert the Measured Value of 135 Stores to a z-Score -- 4. Calculate Rank and Percentile (Rank and Percentile) -- Outline placeholder -- Output -- 5. Non-normal Distributions -- Calculate What Percentage of Rents Fall Between 409 and 573 -- Step 1: Convert the Measured Values to Standard Units -- Step 2: Use Chebyshev Approximation  $=1-(1/(k^2))$  where k is the boundary value in standard units -- Common Pitfalls -- Final Thoughts and Activities -- Practice Problems -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 5: Survey Design -- Key Concepts -- Discussion -- Basic Concepts -- Survey Design -- Scale -- Types of Questions -- Single Response/Select -- Multiple Response/Select -- Structured Questions -- Ranking and Rating -- Non-structured (Open-Ended) Questions -- Data -- Labels -- Demographic Data -- Response Rates -- Editing: Data Quality -- Coding -- Errors in Survey Question Creation -- Loaded Questions. Leading Questions -- Double-Barreled Questions -- Errors in Survey Data Collection -- Random Sampling Error -- Systematic Error -- Response Bias -- Checklist -- Excel -- Final Thoughts and Activities -- Practice Problems and Case Studies -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 6: Sampling -- Key Concepts -- Discussion -- Types of Problems -- Mean versus proportion problems require slightly different treatment -- Finite versus infinite population size is another important factor in determining the appropriate sample size -- Rules of thumb -- Excel -- Problem Type: Infinite Mean -- Practice Problem for Infinite Mean -- Problem Type: Infinite Proportion -- Practice Problem for Infinite Proportion -- Finite Population Correction Factor (fpc) -- Final Thoughts and Activities -- Practice Problems -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 7: Inference -- Key Concepts -- Discussion -- Inferring Proportions -- Example Problem -- Excel -- Inferring Averages -- Example Problem -- Excel -- Confidence Intervals with Proportion Inference -- Example Problem -- Excel -- Final Thoughts and Activities -- Practice Problems and Case Studies -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 8: Probability -- Key Concepts -- Discussion -- Example 1 -- Example 2 -- Excel -- Finding Probabilities Using Normal Distributions -- What Is the Probability That

a Dealership Will Sell 90 Cars or Less ( $x_{90}$ ) per Week? -- What Is the Probability That a Car Dealership Will Sell at least 130 ( $x_{130}$ ) Cars per Week? -- What Is the Probability That a Car Dealership Will Sell Between 90 and 120 Cars per Week? -- Calculating Combinations and Permutations -- Permutation -- Combination -- Finding Probabilities Using the Binomial Distribution.

Royal Bank Retention Problem -- Common Excel Pitfalls -- Final Thoughts and Activities -- Practice Problems -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 9: Correlation -- Key Concepts -- Discussion -- Nonlinear data caution -- Average data caution -- Excel -- Correlation: One  $r$  Value or Correlation Matrix -- Method 1: Two or More Data Sets (Matrix) -- Method 2: Only 2 Data Sets -- Common Excel Pitfalls -- Final Thoughts and Activities -- Practice Problems -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 10: Simple Linear Regression -- Key Concepts -- Discussion -- Residuals and Tests for Linearity -- Standardized Residuals and Outliers -- Excel -- Scatterplot: Compute the Regression Line and the Coefficient of Determination -- Regression Function: Compute the Regression Model -- Compute Residual Plots Using the Regression Function -- Using Excel's Regression Tool to Test for Normality of the Distribution of Residuals -- Method 1: Normal Probability Plot -- Method 2: Normal Distribution of Residuals -- Using Excel's Regression Tool to Test for Constant Variance of Residuals -- Summary of Regression Analysis Process -- Common Excel Pitfalls -- Final Thoughts and Activities -- Practice Problems -- Discussion Boards -- Group Activities -- Parting Thought -- Problem Solutions -- Chapter 11: Significance Tests Part 1 -- Key Concepts -- Discussion -- Basic Concepts -- Choosing the Appropriate Significance Test -- One-Tailed Tests -- Two-Tailed Tests -- Significance Tests -- F-test -- Basic Descriptions of F-Test Applications -- Example 1: One-Way Repeated Measures Using ANOVA -- Example 2: Regression Problems -- Example 3: F-Test for Equality of Two Variances -- Example 4: Between Group ANOVA -- Excel -- Example 1: One-Way Repeated Measures Using ANOVA. Example 2: Regression -- Example 3: Two Sample for Variances -- One-Tailed F-Test for Two Sample for Variances -- Two-Tailed F-Test for Equality of Two Variances -- Example 4: Between Group ANOVA -- One-Tail F-Test Between Group ANOVA -- Two-Tail F-Test Between Group ANOVA -- t-Test -- Basic Descriptions of t-Test Applications -- Example 1: Regression Problems -- Example 2: t-Test for Equality of Means -- Example 3: t-TEST Paired Samples -- Excel -- Example 1: Regression Problems -- Example 2: t-Test for Equality of Means -- One-Tailed Test -- Two-Tailed Test -- Example 3: Before-After Models -- One-Tailed Test -- Two-Tailed Test -- T.TEST -- Common Excel Pitfalls -- Final Thoughts and Activities -- Practice Problems and Case Studies -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 12: Significance Tests Part 2 -- Key Concepts -- Discussion -- Significance Tests --  $\chi^2$  Test -- Example 1: Goodness-of-Fit Test -- Example 2: Independence of Two Variables -- Excel -- Example 1: Goodness of Fit -- Example 2: Testing Independence -- z-Test -- Excel -- Example 1: Z-Test One Sample Mean Versus a Standard -- One-Tailed Results -- Two-Tailed Results -- Example 2: Testing the Means of Two Populations -- Z.TEST Tool for Comparing a Mean or Proportion with a Standard -- Example Problem -- Common Excel Pitfalls -- Final Thoughts and Activities -- Practice Problems and Case Studies -- Discussion Boards -- Group Activity -- Parting Thought -- Problem Solutions -- Chapter 13: Multiple Regression -- Key Concepts -- Discussion -- Excel -- Step 1: Fit the

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Applied Business Statistics for Business and Management using Microsoft Excel is the first book to illustrate the capabilities of Microsoft Excel to teach applied statistics effectively. It is a step-by-step exercise-driven guide for students and practitioners who need to master Excel to solve practical statistical problems in industry. If understanding statistics isn't your strongest suit, you are not especially mathematically-inclined, or if you are wary of computers, this is the right book for you. Excel, a widely available computer program for students and managers, is also an effective teaching and learning tool for quantitative analyses in statistics courses. Its powerful computational ability and graphical functions make learning statistics much easier than in years past. However, Applied Business Statistics for Business and Management capitalizes on these improvements by teaching students and practitioners how to apply Excel to statistical techniques necessary in their courses and workplace. Each chapter explains statistical formulas and directs the reader to use Excel commands to solve specific, easy-to-understand business problems. Practice problems are provided at the end of each chapter with their solutions. Linda Herkenhoff is currently a full professor and director of the Transglobal MBA program at Saint Mary's College in Moraga, California, where she teaches Quantitative Analysis and Statistics. She is the former Executive Director of Human Resources for Stanford University. The first sixteen years of her career included various responsibilities within Chevron Corporation, primarily as a geophysicist. She has lived/worked/conducted research in over 30 countries and has spent time on all 7 continents. John Fogli is the Founder and President of Sentenium, Inc. John's business research methods have helped public and private industries better understand the involvement necessary to lead consensus solutions. He has facilitated over 500 survey projects in the areas of consumer, employee, political, and operation(s) research. He is a member of the Market Research Association and holds a Professional Research Certificate. He is currently a part-time faculty member with the Department of Business at Diablo Valley College and sits on the Executive Council for The Pacific Chapter of American Association for Public Opinion Research. He earned his B.S. from University of California, Berkeley and an MBA from the University of San Francisco.

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