

Statistics for Everyone Workshop, Summer 2008

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Workshop June 10<sup>th</sup> and 11<sup>th</sup>, 2008 presented by Linda Henkel and Laura McSweeney of Fairfield University. Materials available on website: [www.faculty.fairfield.edu/lmcsweeney/SFE.htm](http://www.faculty.fairfield.edu/lmcsweeney/SFE.htm) .

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## OVERVIEW OF WORKSHOP

### Part 1. Statistics as a Tool in Scientific Research: Summarizing and Graphically Representing Data

- A. Statistics as a Tool in Scientific Research
  - Types of research questions (descriptive, correlational, experimental)
  - Types of data (categorical and numerical)
  - Types of statistical procedures (descriptive, inferential)
- B. Basic Numerical Summaries in Tables
  - Frequency and relative frequency tables
  - Contingency tables
- C. Choosing the Appropriate Type of Graph
  - Bar graphs
  - Histograms
  - Scatterplots
  - Time series Plots
- D. Shapes of Distributions and Outliers
- E. Pitfalls to Avoid and Guidelines to Follow in Making Graphs
- F. Hands-On Exercise: Making Graphs Using Excel

### Part 2. Descriptive Statistics: Measures of Central Tendency and Variability

- A. Central Tendency (mean, median, mode)
- B. Variability (range, SD, interquartile range, SE)
- C. Hands-On Exercise: Obtaining Descriptive and Summary Statistics Using Excel

### Part 3. Comparing 2 Conditions With a T Test

- A. Types of T Tests: One-sample t test, Independent samples t test, Paired samples t test
- B. When to use, how to run, how to interpret and report
- C. Hands-On Exercise: Running T Tests Using Excel

### Part 4. Comparing the Proportion of Scores in Different Categories With a Chi Square Test

- A. Types of Chi Square Tests:
  - One-way table (goodness of fit test)
  - Two-way table (test for independence)
- B. When to use, how to run, how to interpret and report
- C. Hands-On Exercise: Running Chi Square Tests Using Excel

### Part 5. Assessing the Relationship Between 2 Variables With Correlation

- A. Correlation and Regression
- B. When to use, how to run, how to interpret and report
- C. Hands-On Exercise: Running Correlations and Regression Using Excel

### Part 6: Putting It All Together

- A. Choosing the appropriate statistical test for your research question
- B. Hands-on exercise: Develop a teaching module for your core science course to integrate statistical reasoning (work on individually; present to group)