

## 0.3 - Introduction to Minitab





#### Minitab<sup>®</sup>

The Minitab program is required as part of this course. Install the software and enjoy this versatile statistical software which includes clear help explanations and easy-to-understand printouts.

To begin Minitab, double-click on the Minitab icon on your desktop or select Minitab from the program folder.

#### Interface

As is typical in most software programs, the menus are found at the top of the application window. With the Minitab application two windows are also opened by default: the session window and a worksheet. The active window has a blue title bar and other windows have a gray title bars. If you want one of the other windows to be the active window, just click on it.

- **Session Window**: The session window displays non-graphical outputs such as tables of statistics and character graphs. (If the Session window is not open, select Session from the Window menu to open the window.) You can edit the Session window.
- Worksheet Window: This is the window where we enter, name, view, and edit data. The data for each variable is stored in a different column. At the top of each column is a blank cell for specifying the name of the variable. You can simply click on a cell at the top and enter the name.

## **Entering Data**

**Note!** Users accessing Minitab via Penn State's RemoteApps or WebApps will not be able to use this copy and paste technique. Instead all files must be uploaded into your PASS space and open these files in Minitab from this location in PASS. See <a href="WebApps">WebApps</a> on the STAT Online site for more information.)

- Entering Data (entering manually): Activate a Worksheet window by clicking once in it. Click the cell where you want to enter the data and type it in. Use [Enter], the mouse, or arrow keys to move to different cells. If an observation is entered incorrectly, simply make that cell active again and type in the correct value.
- Entering Data (importing from a file): There are basic ways to enter data into the Minitab worksheet. Here are two of the most common...
  - **Copy and Paste**: Choose File > Open Worksheet. For example, if you want to add data values from a data file or from an Excel spreadsheet, one simple way to do this is to open that file, highlight the portion you want to add, then select Copy from the Edit menu. Go back to Minitab, activate the cell you want to paste the data into, then select Paste from the Edit menu.
  - Import Files: Select the Open worksheet Option in the File Menu in Minitab. Select the type of file that you are looking to import, (this could be a Minitab file, text file, Excel file, etc.). Locate and then import this file into the Minitab worksheet.

### Minitab Resources

- Minitab tutorial on the STAT Online site.
- Minitab support provides useful guides to get you started with the basic operations. Please reference the following guides to get started in Minitab: <u>Getting Started with Minitab</u>

# Lessons <u>Lesson 0: Overview</u> 0.1 - What is Statistics? 0.2 - Foundations 0.3 - Introduction to Minitab Lesson 1: Collecting and Summarizing Data 1.1 - Collecting Data 1.2 - Classifying Data 1.3 - Summarizing One Qualitative Variable 1.4 - Graphing One Qualitative Variable 1.5 - Summarizing One Quantitative Variable 1.6 - Graphing One Quantitative Variable 1.7 - Lesson 1 Summary Lesson 2: Probability 2.1 - Notation 2.2 - Set Notation and Operations 2.3 - Interpretations of Probability 2.4 - Probability Properties 2.5 - Conditional Probability 2.6 - Independent Events 2.7 - Bayes' Theorem 2.8 - Lesson 2 Summary <u>Lesson 3: Probability Distributions</u> 3.1 - Random Variables 3.2 - Discrete Probability Distributions 3.3 - Continuous Probability Distributions 3.4 - Lesson 3 Summary Lesson 4: Sampling Distributions 4.1 - Sampling Distribution of the Sample Mean 4.2 - Sampling Distribution of the Sample Proportion 4.3 - Lesson 4 Summary <u>Lesson 5: Confidence Intervals</u> 5.1 - Introduction to Inferences 5.2 - Estimation and Confidence Intervals 5.3 - Inference for the Population Proportion 5.4 - Inference for the Population Mean 5.5 - Lesson 5 Summary

6a 2 - Stens for Hynothesis Tests

6a.1 - Introduction to Hypothesis Testing

Lesson 6a: Hypothesis Testing for One-Sample Proportion

```
<u> эсератог гтуроспевів тевез</u>
   6a.3 - Set-Up for One-Sample Hypotheses
  6a.4 - Hypothesis Test for One-Sample Proportion
   6a.5 - Relating the CI to a Two-Tailed Test
   6a.6 - Minitab: One-Sample p Hypothesis Testing
   6a.7 - Lesson 6a Summary
Lesson 6b: Hypothesis Testing for One-Sample Mean
   6b.1 - Steps in Conducting a Hypothesis Test for \mu
   6b.2 - Minitab: One-Sample Mean Hypothesis Test
   6b.3 - Further Considerations for Hypothesis Testing
   6b.4 - More Examples
   6b.5 - Lesson 6b Summary
Lesson 7: Comparing Two Population Parameters
   7.1 - Difference of Two Independent Normal Variables
  7.2 - Comparing Two Population Proportions
  7.3 - Comparing Two Population Means
   7.4 - Comparing Two Population Variances
   7.5 - Lesson 7 Summary
Lesson 8: Chi-Square Test for Independence
   8.1 - The Chi-Square Test for Independence
   8.2 - The 2x2 Table: Test of 2 Independent Proportions
   8.3 - Risk, Relative Risk and Odds
   8.4 - Lesson 8 Summary
Lesson 9: Linear Regression Foundations
  9.1 - Linear Relationships
  9.2 - Simple Linear Regression
   9.3 - Coefficient of Determination
  9.4 - Inference for Correlation
   9.5 - Multiple Regression Model
   9.6 - Lesson 9 Summary
   10.1 - Introduction to Analysis of Variance
  10.2 - A Statistical Test for One-Way ANOVA
   10.3 - Multiple Comparisons
   10.4 - Two-Way ANOVA
   <u> 10.5 - Summary</u>
Lesson 11: Introduction to Nonparametric Tests and Bootstrap
  11.1 - Inference for the Population Median
 11.2 - Introduction to Bootstrapping
   11.3 - Summary
   12.1 - Summary of Statistical Techniques
   12.2 - Choose the Correct Statistical Technique
```