

## for Elementary Statistics: Looking at the Big Picture

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### Preview

The first part of **Elementary Statistics: Looking at the Big Picture**, on Data Production, does not call for the use of statistical software. For this reason, our first chapter consists of basic tips, such as how to enter and manipulate data. Parts 2, 3, and 4 of this guide parallel Parts II, III, and IV of the textbook, presenting examples and activities on Displaying and Summarizing, Probability, and Inference. Within Part 2 on Displaying and Summarizing, and Part 4 on Statistical Inference, methods are presented in sequence for each of the five variable situations: **C**, **Q**, **C**→**Q**, **C**→**C**, **Q**→**Q**.

## Part 1: Warming Up with Excel

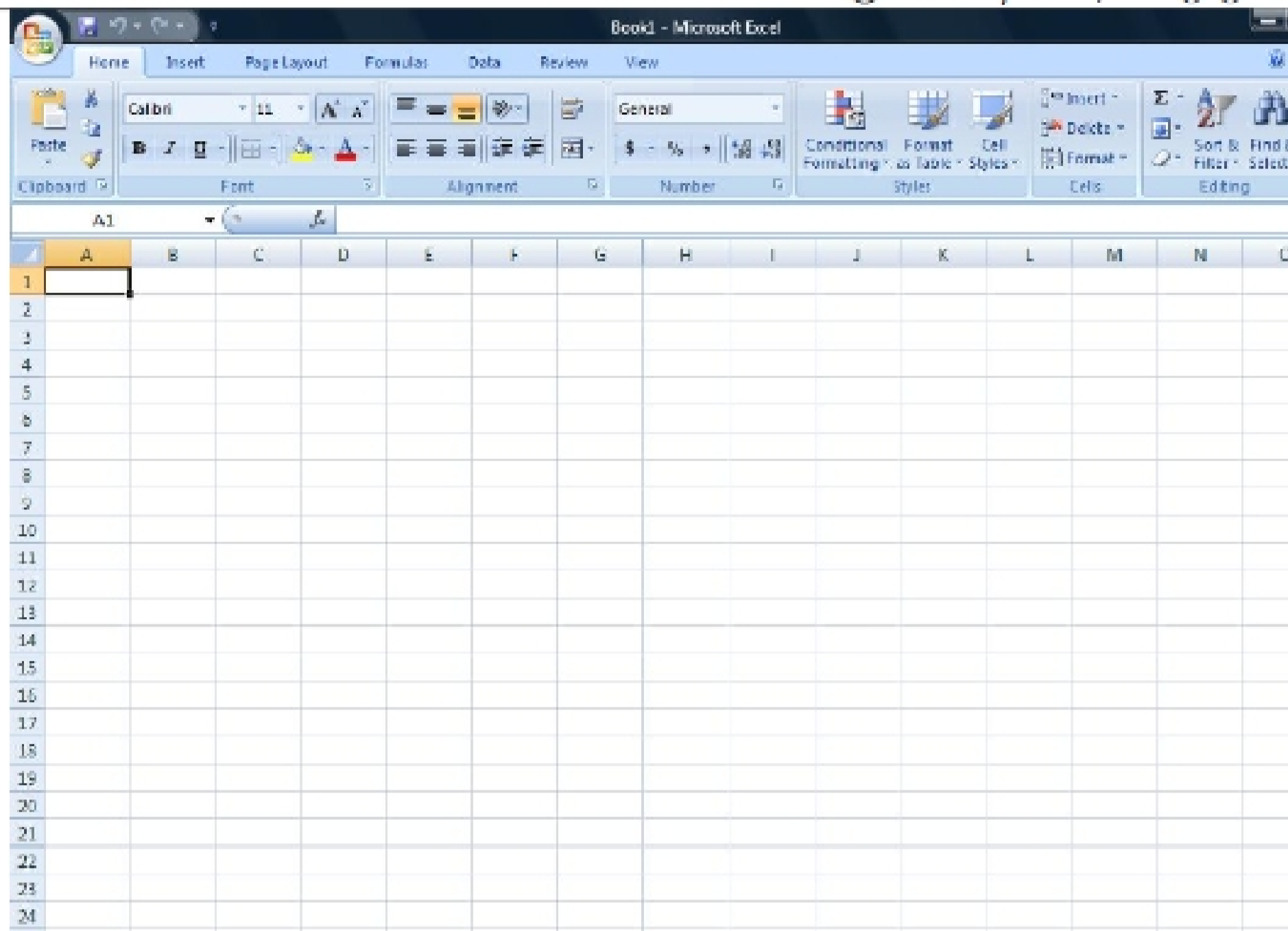
After starting Excel, you'll see a **sheet**, named Sheet1. At the bottom of the screen, you'll see tabs for two other sheets, Sheet2 and Sheet3, as well as a tab to create new sheets. These three worksheets, along with any other worksheets you create are part of the workbook. The worksheet is where we enter, name, view and edit. The Office button is located in the top left corner. The **Office button** contains menu items to open a new or existing workbook, save the current workbook, print a worksheet, access Excel options among other options. When the save option is selected, Excel will save the entire workbook, not as individual worksheets. However, when printing, Excel will only print the currently selected worksheet, not the entire workbook.

To the right of the Office button, is the menu bar. The menu bar contains the main menus: Home, Insert, Page Layout, Formulas, Data, Review and View. To access help for Excel, click the question mark on the right side of the menu bar. Clicking on any of the main menu titles opens several menu options beneath the menu bar. The menu bar is also where submenus appear to edit graphics.

We will often use the Insert Function option, available under the Formulas main menu. The Insert Function option will open a dialog box where you can find and select the function you would like to use. If the function that you would like to use is not already listed in Select a function box, you can search for the function in the Search for a function box by simply typing the name of the function and pressing Go.

### Entering and Manipulating Data

Each variable is stored in a **column**, designated by a letter. For example, A is the first column, B is the second, etc. The column designations are displayed along the top of the worksheet.



The numbers at the left of the worksheet represent positions within a column and are referred to as **rows**. Each rectangle occurring at the intersection of a column and a row is called a **cell**. It can hold one observation. Each row in a column usually represents a value of the variable represented by that column.

The **active cell** has the worksheet cursor inside it and a dark rectangle around it. To enter or change an observation in a cell, we first make the cell active and then type the value.

There are no special cells used for naming in Excel. To name the column, we click on the cell in Row 1 of that column and type the desired name. Because context is so important in statistics, it is a good idea to always name the columns you are working with.

## Examples for Warming Up with Excel 2007

**Example 1.1:** Installing the Analysis Toolpack.

1. Click the **Office** button and select **Excel Options**
2. In the left pane, click **Add-ins**
3. At the bottom of the window, click **Go**
4. Check the box next to Analysis Toolpack and Analysis Toolpack - VBA
5. Click **OK**

6. Click **Yes** to install the feature
7. Once installed, you will find the **Analysis Toolpack** under the **Data** menu. It will be listed as **Data Analysis**.

**Example 1.2:** Suppose we want to store heights, in inches, of female class members [59, 65, 60, 66, 62, 66, 66, 65, 68, 64, 63, 65, ...] into column A and name the column "*FHts*"; Just click in cell A1 and type *FHts*, and press the "Enter" key. Then type 59, Enter, 65, Enter, 60, Enter, and so on. Note that a height of "5 foot 5" would be entered as 65, and "6 foot 4" would be 76.

To store male heights, name column B "*MHts*" by typing this in B1 and enter those data values [76, 68, 75, 66, 67, 68, 71, 72, ...] in this column.

**Example 1.3:** To combine and sort female and male class members' heights,

1. In C1, type the header *Hts*
2. Click A2 and drag to highlight all *FHts* data **Note:** Do NOT select the name cell.
3. Right click on the selection and click copy.
4. Then in the **Hts** column right click on C2 and click paste.
5. Select and copy the *MHts* data and paste it under the existing data in the *Hts* column.
6. Highlight Column C
7. Click **Data** and click **Sort**
8. Select "Continue with current selection".
9. Click **Sort**
10. Click **OK**.

**Example 1.4A:** To change the formatting of a cell (ie, numeric to text, text to numeric, etc.):

1. Select the cells you wish to change formatting on by clicking and dragging
2. Right click the selection and choose Format Cells
3. On the Number tab, select the category that you would like to change the format to
4. Click **OK**