

**EXCEL - Lesson 1: BASIC SKILLS - Entering Data**  
**July 22, 1998, Trudy Battaly**

**Getting Started:**

1. Open software.
  - a) From the menu:                   Start / Program / Microsoft Excel  
The spreadsheet will appear on the screen. Columns are identified as A, B, C... and rows as 1, 2, 3...
2. Selecting toolbars.
  - a) Move the cursor to an empty space on a toolbar and right click the mouse. A menu of tool bars will appear, with those in view checked.
  - b) Check the 2 top tool bars: standard and formatting.
3. Selecting the view (and your working environment).
  - a) From the menu:                   View
  - b) Check 2 views: Formula Bar and Status Bar

**Entering/Editing Data:**

1. Entering information in a cell (single click).
  - a) Cell A1 is automatically highlighted when you open a new EXCEL spreadsheet. Type a title.  
Eg:    *EXCEL CLASS, July 22, 1998*
  - b) Finish the cell with either the ENTER key or any arrow key.
  - c) Using a single click or the arrow keys on the keyboard, move the cursor to highlight A5. (Leaving lines 2-4 open allows space for future notes or a map to show where in the spreadsheet you put a graph, or have located grades for different trimesters, etc.)
  - d) Type the following headings in cells A5 to C5:    *Last Name    First Name    Commute*
2. Editing a cell (double click).
  - a) You have decided that the title isn't descriptive enough. You would like the title to be MSU FACULTY EXCEL CLASS, July 22, 1998, so you will have to insert                    *MSU FACULTY*.  
Return to A1, and insert the phrase.  
..... Oops, when you typed MSU the original words disappeared.

**WHENEVER YOU DO SOMETHING YOU DIDN'T PLAN TO DO, HIT THE ESC KEY or UNDO IT:**  
From the menu:   Edit/Undo or use the UNDO / REDO buttons (curved arrows on the standard bar)

- b) Now **double click** on cell A1 to get into edit mode, and insert the phrase *MSU FACULTY*.

Notice that **the left and right arrows work within the cell in edit mode**, whereas they work on cursor movement from cell to cell when not in edit mode.

- c) Edit cell C5 to read: *Commute Time*

*Remember to save your files!!!*

## EXCEL - Lesson 1: BASIC SKILLS - Entering Data (con't)

### 3. Changing column width.

- The *Commute Time* appears too large for the box. Move the cursor to the vertical line between the column headings C and D. When the cursor becomes the double arrow, left click and drag the width of the column.
- Change the width of the Last Name and First Name columns.

### 4. Entering data.

- Type in the last name and first name of everyone in the room, or use the data below. Readjust column widths if needed.
- Using the **number pad** on the keyboard, enter the commuting time in minutes for each person. Enter the number, then arrow down; number, arrow down; ..etc.... until completed. (This is the fastest way I know to enter a column of numbers.)

	Part 4(a)		Part 4(b)
Possible data:	<b>A</b>	<b>B</b>	<b>C</b>
<b>6</b>	<i>McKeough</i>	<i>Dolores</i>	<i>10</i>
<b>7</b>	<i>Battaly</i>	<i>Trudy</i>	<i>30</i>
<b>8</b>	<i>Gorycki</i>	<i>Christian</i>	<i>45</i>
<b>9</b>	<i>Tiwari</i>	<i>Surooj</i>	<i>20</i>
<b>10</b>	<i>Giordano</i>	<i>Alice Marie</i>	<i>30</i>
<b>11</b>	<i>Panko</i>	<i>Drew</i>	

### 5. Finding the mean and standard deviation of the commute times..

- Double click in C13 and type: `=AVERAGE(C6:C11)`
- Double click in C14 and type: `=STDEV(C6:C11)`

These functions compute the average of the numbers in cells C6 through C11, and the amount of variation among the data. For the above data, the mean is 27.0 and the standard deviation is 13.04.

Note that the mean and standard deviation were applied to cells C6 through C11, and the results are the same as if applied to C6 through C10. The empty cell at C11 does not alter either computation. Thus, if you really want a zero included, you need to enter the 0.

### 6. Counting the number of faculty members.

- Double click in C15 and type: `=COUNT(C6:C11)`

**The = sign is the signal** EXCEL uses to recognize a **formula** or a cell in which **computation** will occur. Without the = sign, C13 would include the letters AVERAGE(C6:C11) instead of actually performing the average function.

*Remember to save your files!!!*

## ***EXCEL - Lesson 2: BASIC SKILLS - Manipulating Data***

### **Sorting Data:**

1. Sorting the data, using the AZ or ZA button.
  - a) Click and drag to highlight A5 through C11. Click on the AZ sort button on the standard menu. This should alphabetize the data based on the left column. (Try the ZA button, then the AZ button again.) Note that the default values for these buttons are: 1) Sort on the left column. 2) Expect the first row to be a heading.
  - b) Repeat step 1(a), except highlight A6 through C11, the actual data. You should note that the first line of data gets ignored because it is treated as a heading.
  
2. Sorting the data, using a general sort.
  - a) Click and drag to highlight A5 through C11.
  - b) From the menu: Data / Sort
  - c) In the SORT BY box: Arrow down and select the heading COMMUTE TIME.  
Click descending.  
Indicate that a header row is present, and click OK.

This should result in a resorted array beginning with the person with the highest commute time.
  
3. Sorting the data with no header row.
  - a) Re-sort the data without the headings. That is, highlight A6 through C11.
  - b) In the SORT box, **begin by clicking "No Header Row."** This time sort on Column A first, then on Column B, and then on Column C.

### **Deleting / Copying / Moving Data:**

1. Deleting data. Highlight the cells you want to delete, and hit the Delete Key on the keyboard. This functions as an erasure. (For a single cell, the backspace key also works.)
  
2. Copying data (to and from the clipboard).
  - a) Highlight A5 to B11.
  - b) Click the Copy Button on the standard bar. (The copy button is on the right side of the scissors Cut Button.)
  - c) Click on A20, and then click the Paste Button on the standard bar. (The Paste Button is the clipboard next to the Copy Button., since you copied to the clipboard.) This should copy the first 2 columns.
  
3. Moving data (to and from the clipboard).
  - a) Highlight A20 to B26.
  - b) Click the Cut Button - the scissors. (It looks as if nothing is happening.)
  - c) Click on D20, and then click the Paste Button. This should move column A to D and column B to E.

*Remember to save your files!!!*

## **EXCEL - Lesson 2: BASIC SKILLS - Manipulating Data (con't)**

### **Data, Formulas, and Relative Cell Locations**

The Bainbridge Ave. parking lot is being torn up to put in a new oil tank. As a result, all office personnel are parked on the hill, and you have to park on the back of the property. This adds 10 minutes to your commute time, because you have to find a new parking space, park the car, and then walk back.

1. Using Relative Cell References to manipulate data and avoid reentry.
  - a) Type a new heading in D5: *Amended Time*
  - b) In cell D6, type:  $=C6+10$   
The C6 in the formula is a relative cell reference. It tells EXCEL where to find the number to add to 10.
2. Copying cells with relative cell references.
  - a) Highlight cell D6 and click Copy.
  - b) Highlight cells D7 through D11 by click and drag, then click Paste.  
(Note that Drew could represent the absent student. So, you do need to think about and adjust the data.)
  - c) Do a simple copy of cells C13, C14, and C15 to D13.
3. Curving grades.

Now, **suppose** these numbers were grades on a test. Use your imagination a little. .... or maybe a lot.

How would you **curve the grades** to a normal curve?

Let's assume you want a normal distribution with a mean of 75% and a standard deviation of 10. The mean for the Amended Time is 37.0 and the standard deviation is 13.04, so:

- a) Type a new heading in E5: *Curved Grades*
- b) In cell E6 type:  $=(D6-37)/13.04*10+75$
- c) Copy E6 to E7 through E11. Then adjust for the absent student.
- d) If you choose to check the mean and standard deviation, copy cells D13 -D15 to cell E13.
- e) You should check the grades. Do they represent the test and students? You may want to amend the formula. An  $\bar{X} = 78$  would simply add 3 points. Is that reasonable? A larger standard deviation will increase the high and decrease the low. Maybe  $\bar{X} = 78$  and  $s = 9$  or  $s = 11$ ? You can try several. This approach to curving grades retains the relative placement of each student in the class.

*Remember to save your files!!!*

## EXCEL - Lesson 3: GRAPHS

**Pie Charts / Bar Graphs:** Use for qualitative data or percentages.

### 1. Selecting Data to be graphed.

a) Start a new worksheet: Click on the NEW Button (white page, upper left)

b) Type in data and then **highlight**:

Grade	Monthly Circulation
9	250
10	275
11	310
12	360

### 2. Selecting Chart Type - Pie Chart

a) On the standard bar, click the CHART Button. This starts the Chart Wizard.

b) Select Pie Chart and click on PRESS AND HOLD button to get your first look. Then click NEXT.

c) In the DATA RANGE box, click the little tricolored square on the right side. This brings you to the data. Highlight just the circulation numbers (250 to 360) and click the right square. This brings you back to the chart wizard.

d) Click on the SERIES tab. In the CATEGORY LABELS, click on the right square. Then highlight the grades 9 through 12. Click the right square. Then click NEXT.

d) Click the TITLES tab. In the TITLES box, type: *Monthly Circulation*

e) Click on the LEGEND TAB. The SHOW LEGEND box should not have a check.

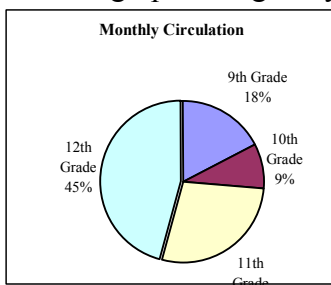
f) Click on the DATA LABELS tab. Click on SHOW LABEL AND PERCENT, then click NEXT.

g) Leave the chart AS OBJECT IN the worksheet, and click FINISH.

### 3. Amending the Pie Chart.

a) Move the chart and resize it to your taste.

b) Go back to the data previously entered and change 9 to 9th grade, 10 to 10th grade, ... Notice that the labels on the graph change as you enter new info.



### 4. Printing the Chart.

a) Click on the chart to highlight the whole thing.

b) From the menu: File / Print / Preview

c) Click the MARGIN button , and resize the chart on the page. Then PRINT.

### 5. Generating a Pie Explosion Chart and a Bar Graph.

a) Follow steps 2 through 5 above, selecting the Pie Explosion from the CUSTOM tab.

b) Follow steps 2 through 5 above, selecting the Column Chart.

**Line Graphs:** Use for quantitative data

Follow steps 2 through 5 above, selecting the Line Chart or other.