

TECHNOLOGY
and
INFORMATION SERVICES

Esse non videri: "To be, not to seem."

MS Excel 2000
Excelling at Numbers

Faculty & Staff Technology Training
Last revised November 2006

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Entering Data

The types of data you can enter into a cell is: *Text*, *Numbers* and *Formulas*. By default, *Text* is aligned to the left in a cell and *Numbers* are aligned to the right.

To enter data into any worksheet cell, follow these simple steps:

- Click on the cell to make it the active cell.
- Type the entry.
- Press **Enter**.

For example, let's enter the following data:

When entering the years, type a single apostrophe before the year. Example: '1998 This will make the years text.

	A	B	C	D	E
1	ABC Company				
2		1998	1999	2000	
3	Fiction	125,647.45	256,755.88	200,000.00	
4	Non-fiction	456,789.00	567,890.32	70,897.44	
5					
6	Total				
7	Average				
8					

NOTE: To correct any data entry errors, use the backspace and delete keys.

Creating Formulas

Formulas allow you to take data that has already been entered in an Excel worksheet and create a new value (*i.e. Taking the average of your student's grades*). A formula returns the results to the cell in which it is located.

Formulas can be entered directly from the keyboard, beginning with the '=' symbol, or by choosing buttons from the toolbar. Excel knows that you are about to enter a formula when it detects an equal sign in the beginning.

To create a formula in a cell, follow these steps:

1. Make the cell in which you want to enter the formula active by clicking on it once.
2. Enter an equal sign. An equal sign tells Excel you are starting a formula
3. Type your formula. It is good to click on the cells that would be involved in your formula verses actually typing it. Since we tend to make typographical errors.
4. Press Enter.

Let's enter a formula to calculate the total sales for each year using the Summation formulas.

Summation Formulas

A summation formula adds the value of one cell to another. A *summation* formula can be entered one of three ways:

1. In Cell A6 type 'Total' (Pres **Tab**)
2. In cell B6 enter: **=B3+B4** (Press **Tab**)
3. In cell C6 enter: **=SUM(C3:C4)** (Press **Tab**)
4. In cell D6 : Click on the AutoSum icon located on the toolbar. (Press **Enter**, the numbers above the cell pointer are added)



	A	B	C	D
1	ABC Company			
2		1998	1999	2000
3	Fiction	125647.45	256755.88	250000
4	Non-fiction	456789	567890.32	70897.44
5				
6	Total	=B3+B4	=SUM(C3+C4)	=SUM(D3:D5)
7	Average			
8				
9				

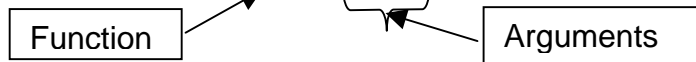
Arithmetic Operators

Sign	Name	Operation	Sample formula	Results
+	plus sign	Addition	=A1+A2	Adds together the values in cells A1 and A2
-	minus sign	Subtraction	=A1-A2	Subtracts the value in A2 from the value in A1
*	multiplication sign	Multiplication	=A1*A2	Multiplies the value in cell A1 and the Value in Cell A2
/	forward slash sign	Division	=A1/A2	Divides the value in cell A1 by the value in cell A2
^	caret sign	Exponent	=A1^A2	Raises the power of A1 to A2


Average Formula

An average formula computes the average of a set of values. There are three ways to enter an *average* formula:

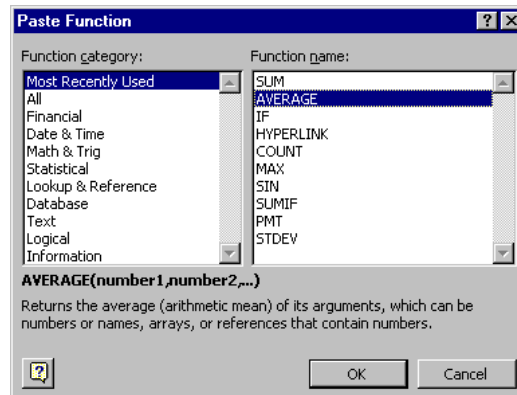
1. In cell *A7*, type 'Average'
2. In cell *B7* enter: =Average(B3:B4) (Press *Enter*)



Functions: Are predefined formulas that you don't have to construct yourself. The Function consists of two elements. The first is the function name (such as AVERAGE or SUM), which tells Excel what to do. The second is the function argument. The argument tells Excel on which cell or cells the function should operate.

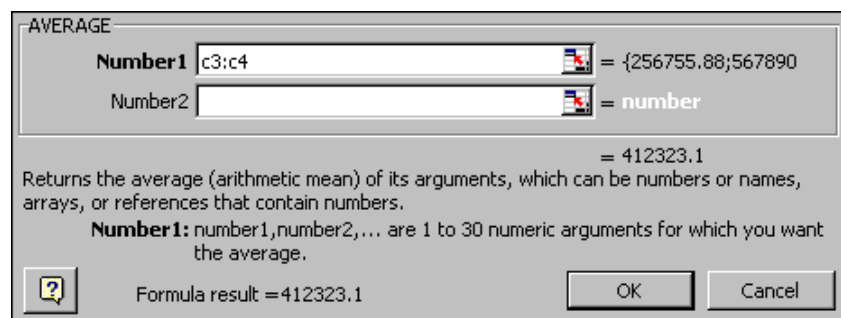
3. In cell *C7*, select the *Paste function* from the  toolbar. The Paste Function box pops up. This box contains a list of all the functions.

- Select the *Average* function then click on *OK*.



The Formula Palette box appears. This Palette helps you enter worksheet functions.

- In the *Number 1* box enter: *c3:c4*
- Click on *OK*.



4. Formulas can be copied from one cell or cells to another cell or cells. One way is by using the fill handle in the lower right hand corner of the cell (pointer becomes a dark **+**) and dragging it to the other cells (pasting). Another method is to select **Edit, Copy and Edit, Paste** from the menu of commands:

Let's try the Fill handle:

- Click on cell **C7** to activate the cell.
- Point and position the mouse on the black square at the lower right hand corner of the cell until it changes to a **+**
- Click the left mouse button and drag the mouse to the right until cell **D7** is highlighted. Release the mouse button.

Using the Copy, Paste function:

- Delete the contents of cells **C6** and **D6**.
- Activate cell **B6** by clicking on it once.
- Click on the menu option **Edit**, then **Copy** (or click the **Copy** icon on the toolbar).
- Click and hold the left mouse button down in cell **C6** and drag to cell **D6** to highlight.
- Click the menu option **Edit**, then **Paste** (or click the **Paste** icon on the toolbar).

To view your formulas, select the menu option **Tools**, then **Options**, then view, then select the formula box under the Windows Options Area.

	A	B	C	D
1	ABC Company			
2		1998	1999	2000
3	Fiction	125647.45	256755.88	250000
4	Non-fiction	456789	567890.32	70897.44
5				
6	Total	=B3+B4	=C3+C4	=D3+D4
7	Average	=AVERAGE(B3:B4)	=AVERAGE(C3:C4)	=AVERAGE(D3:D4)
8				
9				

Turn off the view formula option.

Subtraction Formula and Relative Cell Referencing

The subtraction formula subtracts the value of one cell from the value of another cell.

- In cell E2 enter the following title: Difference in Sales 1998-1999
- In cell F2 enter the following title: Difference in Sales 1999-2000
- Select columns E and F and select the menu options **Format, Column, AutoFit Selection**.
- In cell E3, enter the following formula: =C3-B3 (enter)

Instead of typing in the actual dollar amounts into the formula, we are using what is called cell referencing. We are entering cell addresses, which tells Excel where in the worksheet to go to get the numbers. We can then take this formula and copy it to a new location and Excel will change the cell addresses to reflect the new location. This is referred to as **relative cell referencing**.

- Copy the formula in cell E3 to cell F3. (Click on cell E3 and use the fill handle in the lower right corner of the cell. Click and hold the left mouse button and drag to cell F3.)
- Copy the formula in cell E3 to cell E4.
- Copy the formula in cell F3 to F4.
- Division Formula and Absolute Cell Referencing
- The division formula divides the value of one cell by the value of another cell.
- For each year of sales, we are going to calculate the percent of total sales.
- In cell G2, enter the following title: All Sales
- In cell G6, sum B6 through D6: =SUM(B6:D6)
- In cell A10, enter the following title: % of Total
- In cell B10, enter the formula: =B6/G6
- Copy the formula in B10 to C10.

Take a look at the error message in cell C10. This error means that you are trying to divide by zero. Take a look at your formula in cell C10. The reference to cell B6 was changed to C6, which is correct, but look at what C6 is being divided by. The cell G6 was changed to H6 and cell H6 is empty. We do not want to change the reference to cell G6.

Sometimes you do not want Excel to change a cell reference. We need to keep the cell referencing of the total sales static. To do this we need to place a dollar sign in front of the column letter and row number. This is known as **absolute cell referencing**.

- Delete the contents of cell C10.
- Modify the formula in cell B10 to: =B6/\$G\$6
- Copy this formula across to cells C10 and D10.

Excel Error Messages

When Excel encounters an error in your formula, it will try to fix it or display one of the error values listed below.

Error	What it Means
#DIV/0!	This occurs when the formula divides by zero or if a number is divided by an empty cell.
#Name?	Spelling error in the function name or missing punctuation in the cell reference (comma or semicolon).
#NULL!	Left a space in the cell reference. No spaces in formulas
#REF!	A cell reference is not valid. A column used in the formula may have been deleted.
#VALUE!	This message appears when you specify the wrong type of expected value, such as when you refer to a cell containing a text entry.

Basic Formatting

Formatting Cells to Currency Style

We are going to format all of the cells containing currency to the currency style.


- Select cells B3:D7.
- Click once on the Currency Style icon on the toolbar.



NOTE: If '#####' symbols appear in the cells, it means that the columns are not wide enough to display the data.

Formatting Numbers to Percent (%)


We are going to change the formatting in cells B10:D10 to percent.

- Select cells B10:D10
- Select the percent icon located on the formatting  toolbar.

	A	B	C	D	E	F	G	H		
1	ABC Company									
2										
3		1998		1999		2000		Difference in Sales 1998-1999	Difference in Sales 1999-2000	All Sales
4	Fiction	\$ 125,647.45	\$ 256,755.88	\$ 250,000.00	131,108.43	(6,755.88)				
5	Non-fiction	456,789.00	567,890.32	70,897.44	111,101.32	(496,992.88)				
6										
7	Total	\$ 582,436.45	\$ 824,646.20	\$ 320,897.44			\$ 1,727,980.09			
8	Average	\$ 291,218.23	\$ 412,323.10	\$ 160,448.72						
9										
10	% of Total	34%	48%	19%						
11										
12										
13										
14										
15										

Centering the Worksheet Title Across Columns

To improve the appearance of the worksheet, we are going to center the title across columns A through G. Centering the title across cells will also merge cells A1 through G1 into one cell called cell A1.

- Place the cell pointer in cell A1.
- Click and drag across to cell G1.
- Click on the *Merge and Center* button located on the formatting  toolbar.

Format Painter

There is an icon on the toolbar that looks like a paintbrush. It is referred to as the *Format Painter*. It allows you to copy the format features of one or more cells to another cell or cells.



- Place the cell pointer in cell *A3*. Click the *B* to bold. Change the font size to *12*.
- Click the *Format Painter* icon. The borders of the cell should start flashing.
- Click the cell pointer in *A4*. The text should now redisplay in Bold with a font size of *12*!
- Use the format painter to format cells *A6*, *A7* and *A10*.
- Now we need to increase the width of column *A* to see all of the text. Select *Format, Column, then AutoFit Selection*.

Wrap Text

Sometimes you may want to have your titles wrap within a cell. To do this you need to turn on the *Wrap Text* feature.

- Select cells *E2* to *F2*.
- Select *Format* then *Cells*.
- Select the *Alignment* tab.
- Select *Wrap Text*.
- Make the widths of columns *E* and *F* smaller to wrap the text. To do this, place the mouse pointer between the letters *E* and *F* and you will get a double-headed black arrow. Click and hold the left mouse button down and drag to the left. Repeat by placing the mouse pointer between the letters *F* and *G*.

Practice Exercise

Fun-N-Sun 1st Qtr Sales

	Mail	Campus	Web	Total	Difference in Sales Mail and Campus	Difference in Sales Campus and Web
Bahamas Repose	\$ 52,978.23	\$ 38,781.35	\$ 29,998.65	\$121,758.23	\$ 14,196.88	\$ 8,782.70
Daytona Delight	28,234.50	48,401.53	42,911.16	119,547.19	(20,167.03)	\$ 5,490.37
Key West Haven	62,567.25	72,516.12	24,354.86	159,438.23	(9,948.87)	\$ 48,161.26
Total	\$143,779.98	\$159,699.00	\$ 97,264.67	\$400,743.65	(15,919.02)	\$ 62,434.33
% of Total	36%	40%	24%			

Open the file: *Excelling at Numbers Practice Exercise*.

1. Add the columns Difference in Sales Mail and Campus and Difference in Sales Campus and Web. Use formulas to compute the differences. (You can create one and then copy)
2. Calculate the % of Total for Mail, Campus and Web. Create formula in cell B8 and then copy to C8 and D8.
3. Format cells B8:D8 to %.
4. Center the worksheet title across columns A:G
5. Wrap the text in cells F2 and G2.
6. Change the page layout to Landscape.