

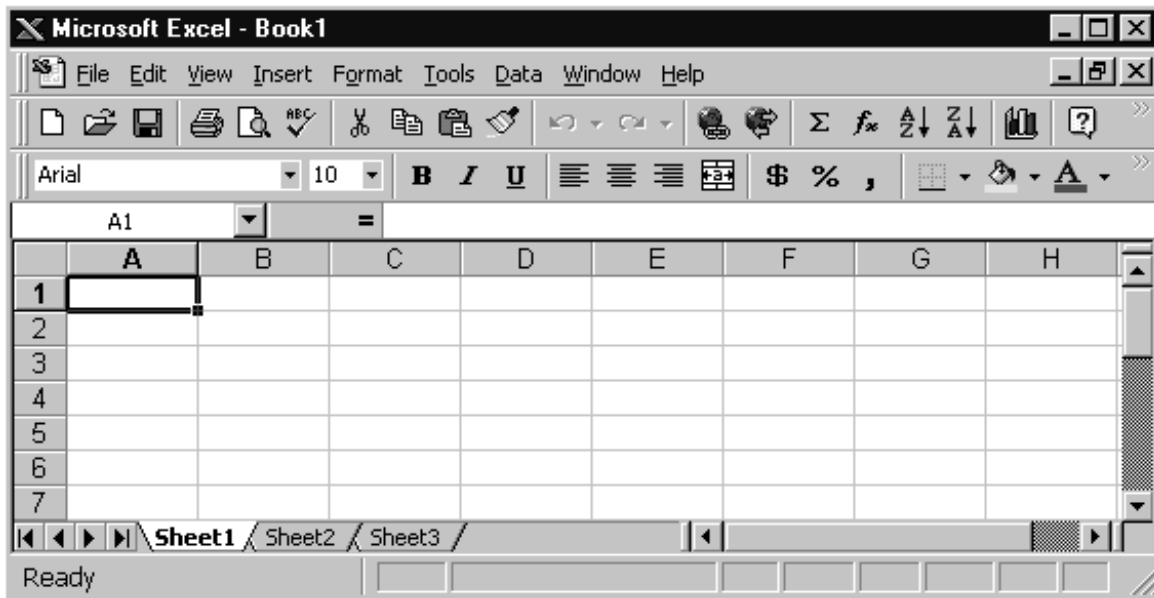


Introduction to MS Excel 97 for PC

Course Description: This class introduces the Microsoft Excel spreadsheet, database, and graphics program for the PC. Topics covered include creating, saving, opening, and printing a worksheet; using the toolbar tools; entering text and values; understanding formulas and functions; using the AutoSum tool; and learning to copy, move, clear, insert, and delete cells, rows, and columns.

Prerequisites: Working knowledge of the Windows environment or completion of "Introduction to the PC" course.

The W&MF staff has prepared this document for you so that you can familiarize yourself with the basics of Excel 97. This document is meant to serve as a future reference for you – covering from the very basic to the fairly detailed. Not all the information mentioned in this document will be covered in the introduction to MS Excel 97 class.



GETTING STARTED

Before taking this course, you should be familiar with the Windows computing environment or have completed the Introduction to the PC class.

What is Excel?

Microsoft Excel is a spreadsheet program that helps you record, analyze, and calculate data. The power of Excel comes from its ability to eliminate repetitive calculations and automatically update data to reflect changes you've made. Excel also allows you to organize and present your data using a variety of graphs and charts.

- **Worksheet** You can store, manipulate, calculate, and analyze data such as numbers, text, and formulas on a worksheet.
- **Database** You can conveniently sort, search, and manage a large amount of information on a worksheet, using standard database operations.
- **Charts** You can quickly present your worksheet data visually in a chart.
- **Macros** You can automate frequently performed tasks, perform specialized calculations.

Opening Excel 97 and Workbooks...

1. Finding and Opening Excel

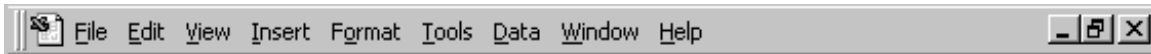
You can launch Microsoft Excel at any of our facilities by opening **start** menu, go to **programs**, **Office 97**, and selecting **Microsoft Excel**. Launching Excel should automatically open a new workbook called Workbook 1. If Excel did not open a new workbook for you or if you would like a new workbook, go to **File** and then drag it down to **New**.

2. Opening an existing Excel File

To open an already existing Excel File, go to **File** and then drag it down to **Open**. Then direct Excel to the file you want to open.

Understanding Your Screen

• Menu Bar



The menu bar contains all the commands available in Excel. To activate any menu command:

Open a menu by clicking its name on the menu bar and then drag your mouse pointer down to highlight a menu command and click on it.

• Tool Bar



The Tool Bar is a shortcut that permits the user to execute commands with a single click of a mouse button instead of using the menu bar. You can pick which Tool Bars appear on your screen or customize your own Tool Bar by going into **View** and selecting **Toolbars...**

• Formatting Bar



The Formatting Bar allows you to edit the formatting of various cells.

• Formula Bar



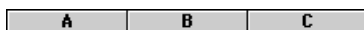
The Formula Bar displays the location and data of the active cell. You can also edit cell contents here.

• Scroll Bar



The Scroll Bar allows you to scroll in between sheet or within the sheet.

• Column headings



• Row headings



All column headings are referenced by letters while Row headings are referenced by numbers.

Data Entry



You can enter data in a cell by selecting the cell and typing. You can complete a cell entry by clicking the *enter box*  or by pressing ENTER. You can cancel an entry or edit by clicking the *cancel box*  or by pressing ESC. You can also do *a Direct Cell Entry* (Direct cell entry allows you to see the scroll mark and edit directly from within the cell. To active direct cell entry, double click on the cell).

Table 1 - Basic Controls

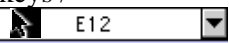
Action	Keys	
	General Scrolling	When Highlighted
Move up one cell	up arrow	shift + return
Move down one cell	down arrow	return
Move right one cell	right arrow / tab	tab
Move left one cell	left arrow / shift tab	shift tab

**Important reminder:* Do not use the arrow keys when you are entering data or when you have cells highlighted. Using your arrow keys will result in selecting a new active cell.

Editing Cell Entries

Before we can edit any cell entry/entries, we must select the cells we want to edit. See Table 2 - Cell Selection for a quick reference guide on cell selection.

Table 2 - Cell Selection

Action	Keys
Selecting a single cell	1. Mouse / 2. Arrow keys / 3. Using Coordinate 
Selecting an entire row	1. Click on the row header of the row you want to select
Selecting an entire column	1. Click on the column header of the column you want to select
Selecting an entire worksheet	1. Click on the box where the column and row headers meet
Selecting multiple adjacent cells	1. <u>Drag</u> the mouse over the cells you want to select or, 2. Using the mouse, select the first cell (top most left) of the cells you want, then <u>hold down the shift key</u> and select the last cell (bottom most right) of the cells you want.
Selecting multiple adjacent columns or rows	1. Drag the mouse over the row/column header of the rows/ column you want to select, or 2. Using the mouse select the first row / column of the rows/ column you want, then <u>hold down the shift key</u> and select the last row / column header of the rows / columns you want.
Selecting multiple non-adjacent cells	1. Using the mouse, select the first cell of the cells you want, then <u>hold down the control key</u> and select the rest of the cells you want.
Selecting multiple non adjacent rows or columns	1. Using the mouse select the first row / column of the rows/ column you want, then <u>hold down the control key</u> and select the rest of the rows / columns you want.

Inserting new cell(s), row(s), or column(s)

- To insert a new cell or cells:

Select the number of cells you want to insert. Go under the **Insert** menu and select **Cells...**

- To insert new rows or columns:

Select the row or column heading(s) where you want to insert you new row(s) or column(s). Go under the **Insert** menu and select **Rows** or **Columns** Excel will try to give inserted cell(s) the same format as the cells around them.

- To insert a new sheet(s):

Go under the **Insert** menu and select **Worksheet**.

An important difference between DELETE and CLEAR:

- If a cell content is *cleared*, its contents are erased but the cell itself remains. However when a cell is *deleted*, the cell itself is removed, moving the adjacent cells to close up space that was occupied by the deleted cell. This causes two main problems:

Aesthetics - Deleting a cell shifts your worksheet data around.

Formulas - if you enter the formula =A1*B1 in a cell and then cleared cell B1, the result of the formula will be zero (A1*0). But if B1 was deleted, the cell containing the formula =A1*B1 is changed to =A1*#REF! and produces the #REF! error value to let you know that you need to adjust your formula.

- This is a common error among Excel users who are just trying to clear the existing cell of old data or formats so that they can enter a new set of data or formats. But by deleting the existing cell, they no longer have the correct cell(s) or space to enter their new information.

• **Delete**--Use the Delete command to remove cells from the worksheet and close up the space occupied by the cells. Deleted cells do not go to the Clipboard. Use the cut command if you want to move data to a new location. You can also delete an entire row or rows (which will shift the remaining rows up) or delete an entire column (which will shift the remaining column to the left) or an entire work sheet.

- **To delete cell(s), rows or columns:**

-Select the cells, rows, column or work sheet you want to delete.

-Go under the **Edit** menu and select **Delete...**

-From there you will have the to chose which way to shift the existing cells.

- **To delete a work sheet:**

- Go under the **Edit** menu and select **Delete Sheet**.

• **Clear** -- Clearing a cell clears the contents (and formats, or notes, or all three) from that cell, but leaves the cell in the structure of the worksheet.

- **To clear a cell, row, or column:**

- Highlighted the intended cell, row, or column you want to clear.

- Go under the **Edit** menu and select **Clear**

- Under the **Clear** command, you can either select clear **All, Contents, Formats, or Notes**.

- Select the command you want and release.

- It is usually better to delete a whole sheet than to clear a sheet of all its content.

- To clear a single cell of its content, hit the **delete** button on your keyboard.

	G	H	I
2		14	
3		15	
4			
5			

- Cut and Copied cell(s) will have a dashed rectangle around it.

• Drag and Drop

Select the cell(s) you want



Move your mouse to the edge of the highlighted area. Your cross will turn into an arrow.




Drag your mouse to the new position of the selected cell.




You have now move the selected cells to a new coordinate.

• Copy


- Use this command to make a copy of the selected cell(s) and place them on the Clipboard. You can copy any cell(s) by:

- Selecting the desired cell(s)
- Go under the **Edit** menu and select **Copy**, or click on , or use the key stroke **Ctrl+C**
- Now, you are ready to paste your selection


• Cut -- removes the selected cell(s) and place them on the Clipboard

- Select the desired cell(s)
- Go under the **Edit** menu and select **Cut**, or click on , or using the key stroke **Ctrl+X**
- Now, you are ready to paste your selection

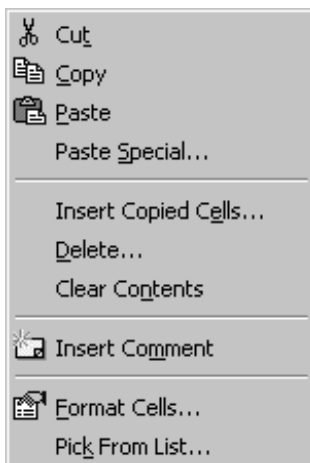
• Paste-- places the contents of the Clipboard into the selected cell(s). The pasted cells will overwrite any existing cells.

- Cut or Copy cell(s) into the clipboard
- Select the cell where the Clipboard content is going to go. You must either select:
 - a paste area equal to the size of the copied or cut cell(s) (i.e. 2x2 or 4x4) or
 - select a single cell where the first cell (top most right) of the copied or cut cell(s) is going to be pasted. The rest of the copied or cut cells will be pasted in the same order in which it was copied or cut.
- Go under the **Edit** menu and select **paste**, or click on , or using the key stroke **Ctrl+V**

• Paste Special

Use this command to place only the format  or data of a copied cell. You can find **Paste Special** under the **Edit** menu.

• Quick Edit Menu



To activate the Quick Edit Menu:

- Hold down the right mouse button.

To activate the commands in the Quick Edit Menu:

- Drag the mouse pointer to the command you want and release the mouse button to activate.

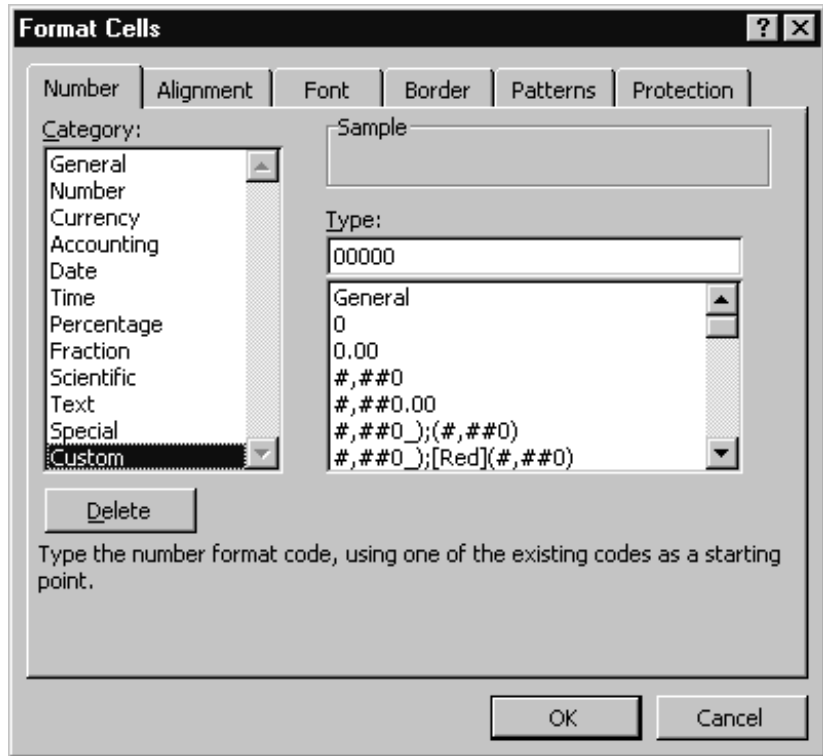
• **Cell Formatting**

- With cell formatting, you can change the appearance of data in your worksheet, such as formatting numbers to designate dollar amounts, percentages, decimals, or change the font, size, style, color and alignment of data in a cell.






- You can also change the appearance of the cells in your worksheet by adding color or borders to your cells.




- To active the Format Cells Menu:

Go under the **Format** menu and select **Cells...**



- As with all editing, you must select either the cell, range of cell, row(s), column(s), or the entire sheet that you want the format to be applied.

1. Number- The Number Format allows you to designate how data is displayed in Excel. You can choose to have the cell data converted from decimals into percent  or have your data turned into currency  without having to type a \$ sign in front of every single entry. Excel can also customize how it displays your data, such as having commas  in your numbers or how many decimal places your data should display. In the toolbar, using this button  will decrease the decimal place by one and this button  will increase your decimal place by one. Besides having your data converted in to percent and currency, there are other options such as date, time, fraction, scientific, text and even custom. To use the Number Format Menu effectively, you must understand how to use the Code box.

2. Alignments- The Alignment format allows you to left align , center  or right align  your text within a cell. You can also align text within a range of cells, change the Orientation and Vertical alignment of your data, and active word wrapping to save space and keep long lines within one cell.

- To center text within a range of cells:

-Enter the data you want to center in the furthest left cell.

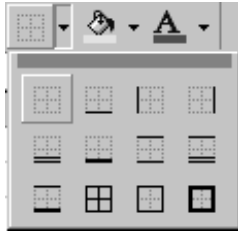
-Highlight the range of cells within which you want your data centered.

-Hit the  button or activate the **Cell Format Menu**, chose **Alignments** and select **Center across section**.

3. Fonts- The Fonts format allows you to change your font , its size , its style **U** (underline), **I** (italics), **B** (bold), and its color **A**.

- Using the Fonts format menu will also allow you to do font effects such as strike through, superscript, subscript, outline, shadow and double underline.

4. Border- The Border format allows you to add borders to your cells to enhance a worksheet.

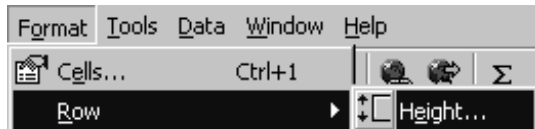


- To add borders to your cell(s), row(s), column(s) or sheet:
 - Select the cell(s), row(s), column(s), or sheet that you want the border to be applied.
 - Select or activate the **Cell Format Menu** and select **Borders**.
 - If you are using the tool bar, drag to the border you want or
 - Select the line size you want and pick where it should be applied if you are using the Border menu.
- Using the Border menu will give you a better selection of lines and a choice of color.

5. Patterns - The Pattern menu allows you to color in the background of a cell(s) or apply a shade (color shades available) within the cell(s) in order to produce a higher impact document.

6. Protection - Use the Protection menu to lock any cell(s) from being changed.

Adjusting the Width and Height

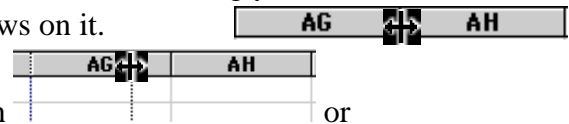


- To change the height or width of a cell:
 - Select the cell you want to format
 - Activate the **Format** menu and chose **row height** or **column width**
 - Changing a cell with will automatically change the width of the whole column and changing a cell height will automatically change the row height.

Using auto fit to change the width of a column and height of a row.

There is an **AutoFit** selection under the height and row format. **AutoFit** will automatically adjust your cell size to fit the entry in your cell. However, if an entire column or row is selected, Excel will adjust the column or row to the size of the widest cell in that particular column or row.

- Place the cursor on the line between the two columns or rows heading you want to format.
- The cursor should turn into a symbol with two arrows on it.



- Now drag the symbol to your desire height or width
- Double click the mouse button to **AutoFit** the entire row or column.

• Creating a Series

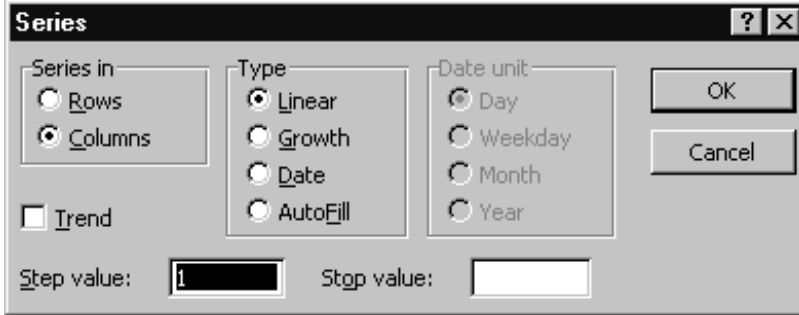
- Several types of data repeat in logical sequence or predictable patterns. (e.g. Days of the week and months). Excel can repeat several such sequences when you create a series. You can create a series in two ways, using the **Fill Series** menu or **dragging**.

- To create a series with the Fill command:

In the first cell where you want to start the series, enter a starting value.

Select the cells in the row or column in which you want to extend the series, starting at the cell in which you entered the starting value of the series.


From the **Edit** menu, chose **Fill Series...**



- Chose the series type (linear, exponential)
- Chose the linear increment, or growth factor you want to use
- Chose when you want Excel to stop extending the series.
- Hit **OK** when finish

- To create a series by dragging:

-Select a range of two cells and enter the first two values for the series. Leave the range selected.

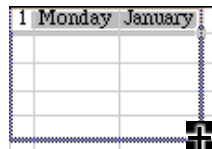
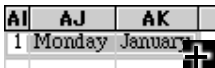
-Move cursor over to the bottom right corner of the selected range called the **fill handle**. 

-Cursor should turn into black cross. 

-Drag the fill handle and release the mouse button at the end of the range into which you want to fill.

- Excel determines the incremental changes between the cells and adjusts the values of the series by the same amount. Excel is not always accurate with its determination. If you don't want Excel to adjust for the incremental change, hold down the **Ctrl** key.

Step 3



Step 4



- Result

• Formula Entry

- A formula is a simple way to evaluate a series of values. Each formula starts with an equals sign “=” followed by either a **cell reference** (such as “A1”) or a **value** (such as “1875”). Usually a formula contains several series of values of cell references each separated by a **math operator**. (see Table 3)

- A typical formula might look like this = X2 * (D2 - B2)

- Remember to use parenthesis to show what operations should be done first.

Table 3 Math Operators

Function	Sign
Division	/
Multiplication	*
Subtracting	-
Addition	+
Power	^

• **Relative Referencing**

- A relative reference tells Excel how to find another cell, starting from the cell containing the formula. Reference such as C4 and F7 are relative references.
- When you copy formulas and functions, Excel automatically adjusts the cell references so that it works correctly. Excel calls this method of adjusting the references relative addressing, which means that as you copy the cell to another location, Excel adjusts the references in a relative manner. Thus if you copy the formula “A1+B2” in cell E1 over to cell F3, Excel adjusts the formula to “B3+C4” by “adding” a column and two rows to the references in the current function.

• **Absolute Referencing**

- An absolute reference tells Excel how to find a cell based on the exact location of that cell in the worksheet.
- When you have a reference that must stay fixed, you mark it as an absolute reference. An absolute reference is a cell reference that Excel does not adjust when you copy or move the cell.

• **To mark an absolute reference:**

- Select the cell reference that you must mark as an absolute reference
- Mark an absolute references in your formula with a dollar sign (\$) before the column letter or the row number or both (e.g. \$C\$3).

How can I decide when to use Relative or Absolute References?

- Use a relative reference (such as B5) if you want to refer to cells relative to the cell containing the formula, even if you copy the formula. Use an absolute reference when you want to refer to the same cell regardless of where the formula is located on the worksheet.

- For Example:

	X	Y	AA
1	Month	Spending	% of Total
2	January	\$ 1,025	=Y2/\$Y\$14
3	February	\$ 1,542	
4	March	\$ 1,624	
5	April	\$ 1,300	
6	May	\$ 987	
7	June	\$ 1,245	
8	July	\$ 1,841	
9	August	\$ 1,623	
10	September	\$ 1,436	
11	October	\$ 1,154	
12	November	\$ 1,312	
13	December	\$ 1,614	
14	Total	\$ 16,703	

- If you want to know the monthly spending as a percentage of the total spending. You would divide January Spending by Total Spending. Thus, you would write the formula “=Y2/\$Y\$14” or “Y2/Y14” for the month of January.

- If you wrote “=Y2/\$Y\$14”, as you fill or copy the formula to the cell AA3 the formula will automatically change to “=Y3/\$Y\$14”. The relative reference “Y2”, January Spending, will change to “Y3”, February Spending, while your absolute reference “\$Y\$14”, Total Spending”, stays the same.

- However, if you wrote the formula “Y2/Y14” for the month of January, as you fill or copy the formula to the cell AA3, the formula with the relative reference “Y2”, January Spending, will change to “Y3”, February Spending. But the relative reference “Y14” which referred the Total Spending will change to “Y15”, which has a value of Zero. This will lead to a wrong value.

- You could type the formula into each cell. Thus having to avoid the error of relative referencing.


	X	Y	AA
1	Month	Spending	% of Total
2	January	\$ 1,025	6.14%
3	February	\$ 1,542	=Y3/\$Y\$14

- correct use of reference

	X	Y	AA
1	Month	Spending	% of Total
2	January	\$ 1,025	6.14%
3	February	\$ 1,542	=Y3/Y15

- wrong use of reference

• **Functions**

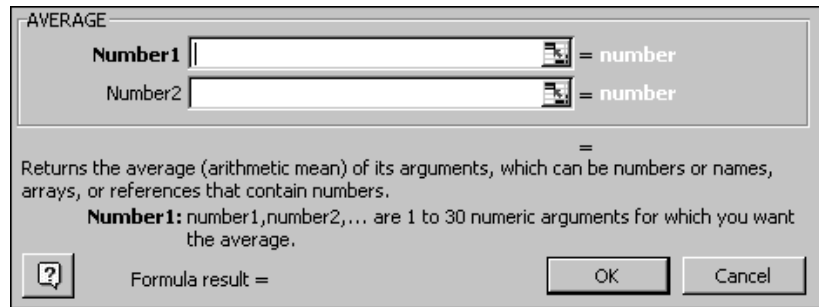
- A function is a special prewritten formula that takes a value or values, performs an operation, and returns its result(s). Using functions simplifies and shortens formulas in your worksheets, especially those that perform lengthy or complex calculations. For example, instead of typing the formula “=A1+A2+A3+A4+A5”, you can use the Sum function Σ to build the formula =SUM(A1:A4). The necessary data such as “A1:A4” are called **arguments**. To input any function, write in a function with the correct arguments into your formula or click on the **FUNCTION WIZARD** Icon , or go to **Function...** under the **Insert** Menu.

• Using the Function Wizard

• **Step 1** will allow you to pick the function that you want. Simply highlight the function that you want and hit **Next**.

• **Step 2**

- Step 2 of the Function Wizard will give you a description of the function at the top and list the necessary arguments to complete the function. Depending on which argument that you are at, Excel will give you a description on what values are needed in the specific argument.



- Arguments that are in **Bold** are necessary while the normal text are not.

- To input the range of data necessary for each argument:

-Type in the correct range or

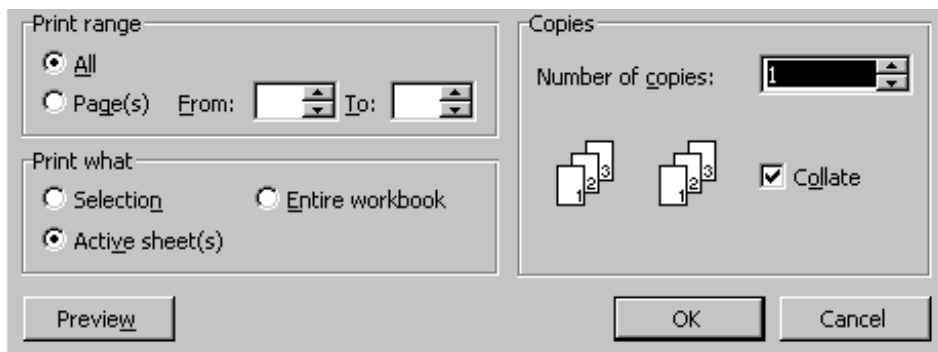
-Select the range from your worksheet using your mouse. or

-If the required data input for the argument is a function, then hit the function wizard icon next to the argument and repeat steps one and two to create the necessary input.

- When you are done, hit the **Finish** button or hit **Back** to change your function.

Printing

To print any worksheet select **Print...** under the **File** menu.



- You can chose between printing your selection, current worksheet, or the entire workbook.

- It is suggested to view print preview before printing.

- **Customized Print Out**

- Often Excel prints more than what you want, or prints one row of a document on a separate page, or what not. You can have complete control over page formatting by combined use of the **Print Selection, Insert Page Break, and Page Setup Dialog Box.**

- **Margins**

- To remove change your margins, go to the **Page Setup...** under the **File** menu and select **Margins.**

- **Landscape or Portrait**

- Excel by default prints the worksheet Portrait. To change to Landscape, chose **Page Setup...** under the **File** menu and select **Page.**

- **Printing your selection**

- Select the cells you want to print, and choose the **Print** command under the **File** menu. In the Print dialog box, select **Print Selection.** Only the selected cells will now be printed.
 - By default, Excel sets the print area as a rectangle stretching from cell A1 to the furthest cell containing any entry. You can select an exact Print Area, by clicking on the **Page Setup** button after you selected **Print Selection.** In **Page Setup,** go to **Sheet** and select the print area you want either by typing or dragging the area on your worksheet. The individual ranges will print on separate pages.

- **Insert Page Break**

- One usually doesn't want to split a table over pages. You can't just hit the return key a few times and move the table over to the next page like in Word; adding rows is awkward. Instead, go to the cell you want to appear at the top of the new page, under the Insert menu, select Page Break. You'll see a dotted line *above* the current cell, representing the page-divider.

- **Scaling** - Scaling allows you to manually specify the magnification of the sheet you want to print. **Fit to Page** will scale any spreadsheet or graph to fit on a specified number of pages. In the **Print Setup** dialog box chose **Page** and you can set the number of pages wide and tall you want to scale to. Excel will scale proportionately. If you have a document with a couple of columns but many rows, trying to fit on 1 page will give you some unreadable tiny characters on one side with the rest of the page empty. In such a case fitting to 1 page wide and several pages tall will give better results.

- **Header and Footers**

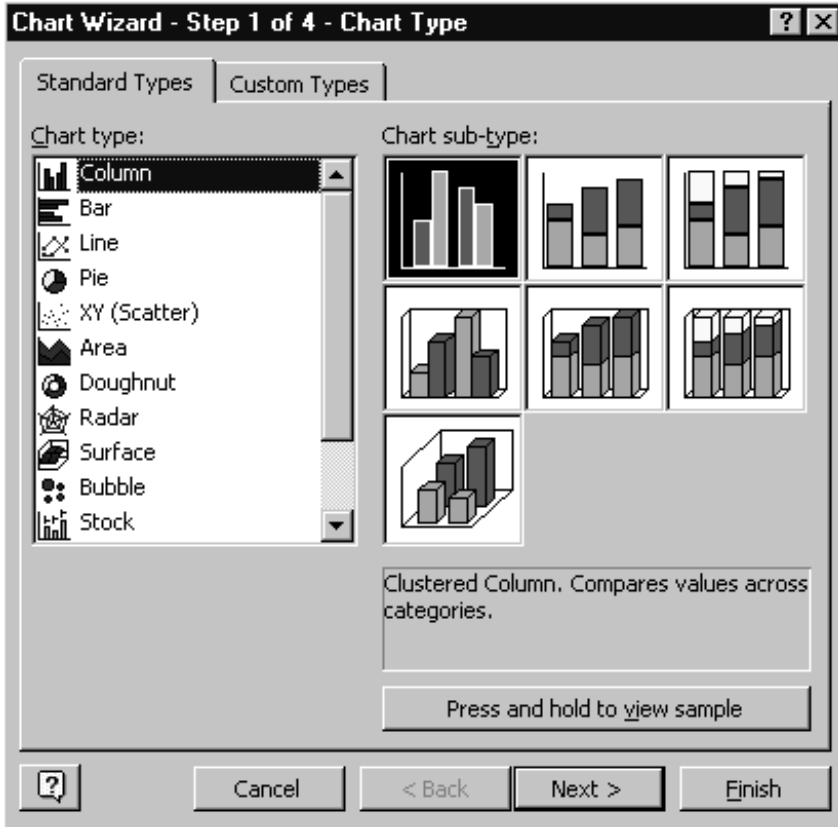
- By default, Excel prints the file name at the top and the page number at the bottom of each page. To change this, go to the **Page Setup...** under the **File** menu and select **Header/Footer.** Click on either and proceed to erase whatever text is in the dialog box.

- **Removing those annoying gridlines**

- To remove gridlines during printing, go to the **Page Setup...** under the **File** menu and select **Sheet.** There's a checkbox for gridlines. Turn it off.

• **Creating A Chart**

- Select the data you want to plot. Include cells containing labels for rows and columns that you want used in the chart.
- Click the **Chart Wizard** tool or go under the **Insert** menu and select **Chart**.



• **Step 1**

- Step 1 of the Chart Wizard allows you to select the type of chart that you want.
- Select **Next** when you are done or **Back** if you have made a mistake in the previous step.

What's the difference between a Line chart and a (XY) Scatter chart?

- The line chart emphasizes time flow and the *rate* of change, rather than *amount* of change. Which means that the line chart will plot each data point one tick mark apart regardless of how far apart the x-data is. It only shows the difference between one point to the next.
- The XY- scatter however will show the relationship or degree of relationship between the numeric values in several chart data series. This means that Excel will calculate the scale and tick-mark labels for the x-axis, just as it does for the y-axis. You will have the ability to plot a line through XY-scatter.

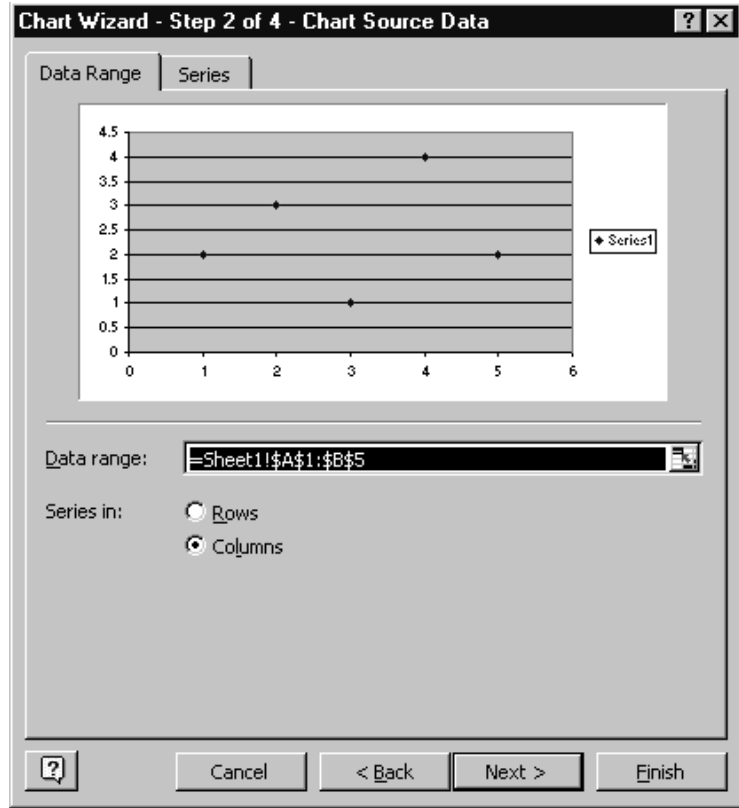
An Example: If you were to plot pig numbers vs. how much they weight. The numerical value for the pig should not affect how the data is plotted since all pigs are equal. However, if you were plotting Time vs. growth, both time and growth are dependent and must be plotted according to scale.

• **Step 2**

- Step 2 of the Chart Wizard tells you to confirm that the cells you wanted are in the range displayed. If you did happen to select the wrong cells, go ahead and move the Chart Wizard dialog box and select the correct cell(s) or type in the correct range.

Series - select **Rows** if your data was enter in a rows (across) or select **Columns** if your data was enter in a column form (up/down).

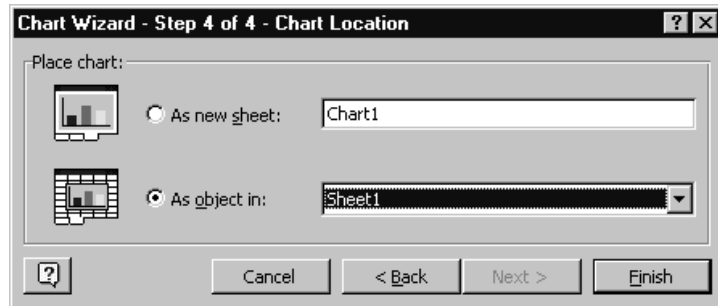
- Select **Next** when you are done



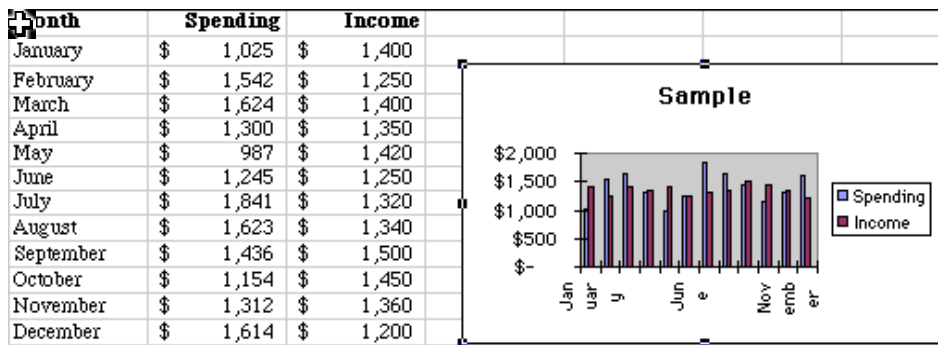
• **Step 4**

- Step 4 of the Chart Wizard allows you to select where you want to place the new chart, either in a new page, or as an object in the current page.

- Select **Finish** when you are done or **Back** if you have made a mistake in the previous step.

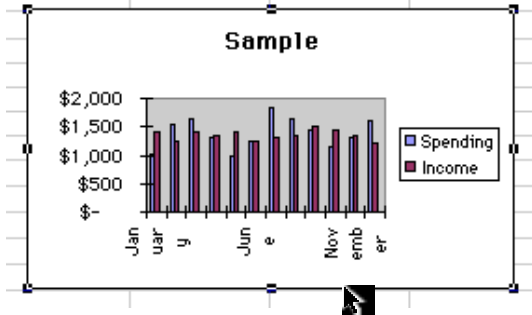


• **You have now created a chart...**



- Don't worry if you forgot to add a chart title or an axis label or even picked out the wrong chart, we can always edit the chart after we are done.

Working With A Chart

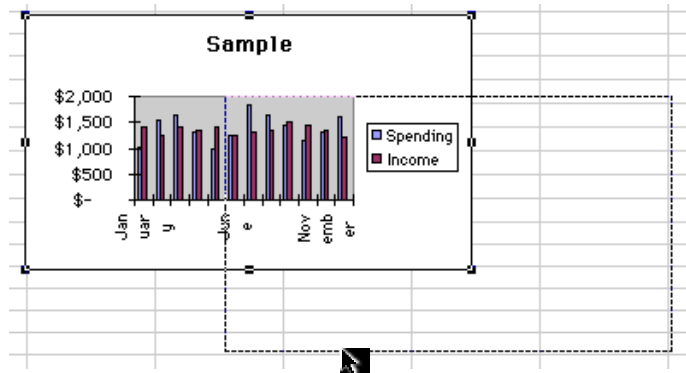
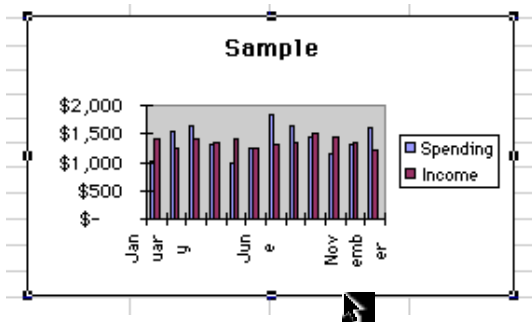


• Selecting A Chart

- Select a chart by clicking one time on the chart. Selected chart will have eight tiny boxes around the edge called handles.

• Moving a Chart and its Contents

- Moving a chart is similar to move a cell. Select the chart you want to move and drag it to the new location. - You can also move the Title, Legend, Axis Labels and even the plot it self from the opened chart.



Select the Object you are trying to move.
 Selected Object within the chart should have boxes around it.
 Move the object by dragging the object by its border.

• To Insert, Modify or Delete Legend, Chart Title or Axis Labels:

Right click on the chart, and choose **Chart Options...**

Change the appropriate data.

• To Change the Chart Type:

Right click on the chart, and choose **Chart Type...**

Select a new chart type for your data.

• To Name My Series:

Right click on the chart, and choose **Source Data...**

Select the **series** tab, and give the series a name.

• To resize the Legend:

Select the Legend from an open chart
 Drag handles to resize.

• **To Resizing the Chart:**

Select the chart you would like to resize.

Selected chart will have eight tiny boxes around the edge called handles.

Select the appropriate handle.

When the cursor is placed over a handle, it turns into a double arrow.



Drag the chart to a new size.

