

Using Microsoft Excel 2 - A Second Tutorial

developed by
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Printing: Print Area and other issues

Printing an Excel spreadsheet has some different options than printing a Word document. Since a spreadsheet consists of rows and columns of cells, then you will print a rectangular block of rows and columns. By default, when you print the spreadsheet the first time, it will print the whole spreadsheet.

To print the spreadsheet, click File | Print, and click the OK button, just like Word.

However, if you have a large spreadsheet, and you only want to print a part of the spreadsheet, then begin by highlighting the rectangular block of rows and columns that you want to print. You do this by clicking in the cell of one of the corners of the block and dragging the mouse to the opposite corner. This is illustrated in the picture to the right where the cells are highlighted starting in cell A1 and dragging to cell E4.

	A	B	C	D	E
1	CSCI 101	Fall 2004			
2	2/22/2005		----- Tests -----		
3	Name	Average	1	2	Final
4	Adams, Sue	76.5	88	77	71
5	Baker, John	81.4	91	75	82
6	Casel, Jane	79.8	66	77	88
7	Edwards, John	88.0	88	88	88
8			66.8	63.8	82

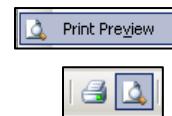
Now click on the File | Print menu option, and click the **Print Area** menu option and then click the **Set Print Area** option. This records this block as the block to be printed.



Now click the File | Print menu option (or alternatively, click the print icon on the toolbar) and click OK to print.



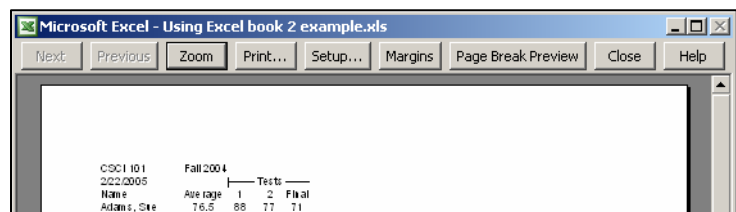
If you want to preview your print selection, then you can click the File | Print Preview menu option or just click the print preview tool icon.



You will have the print preview window displayed.

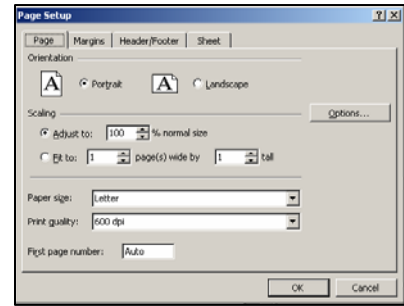
Note the options of the preview window. You can select from these buttons:

- Zoom
- Print ...
- Setup ...
- Margins
- Page Break Preview

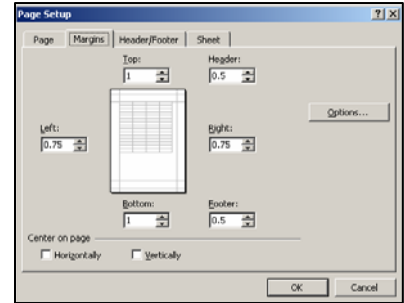


Zoom will zoom in and back out. Print ... will display the Print window, the same as File | Print menu option.

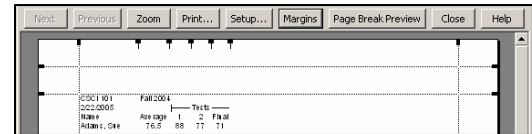
Setup will display a setup window that allows you to specify portrait/landscape, margins, and other options.



Click on the Margins tab in the Setup window. This gives you an easy way to adjust the margins of the page, and well as if the spreadsheet will be centered horizontally and/or vertically on the page.



Alternatively, you can click the Margins tab in the setup window which displays the margins with dashed lines. You can put the mouse on any of the margins lines and drag the line to adjust the margin.



Also, the columns are indicated along the top of the page display, and you can click and drag the column indicators to adjust the column widths.

Next, in the print preview window, click the Page Break Preview tab. The spreadsheet is displayed with the page (or pages) framed by a blue border. You can put the mouse on any of the blue borders and drag the blue line to adjust the print area and to adjust the locations of the page breaks, and the columns of the print area.

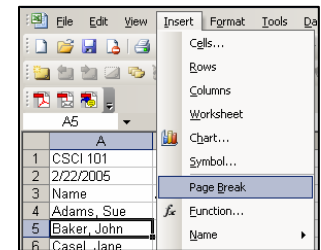
	A	B	C	D	E	F
1	CSCI 101	Fall 2004				
2	2/22/2005		Tests			
3	Name	Average	1	2	Final	
4	Adams, Sue	76.5	88	77	71	
5	Baker, John	81.4	91	75	82	
6	Casel, Jane	79.8	66	77	88	
7	Edwards, John	88.0	88	88	88	
8			67	64	82	
9						
10						

Page Breaks and Page Headers

If you want to print parts of the spreadsheet on multiple pages, each page with the column headers, then you need to do two things,

- Set page breaks in the spreadsheet
- Specify the column headers

To specify where you want the page to break, that is, the bottom row of one page and the top row of the next page, click on a cell in the row to be at the top of the new page, then click the Insert main menu option, and click the Page Break option on this menu. For example, in the illustration to the right, the cell A5 with the name Baker in it was clicked and Page Break was selected. After this was done, the A5-Baker cell has a dashed line for its top cell border indicating that this is a page break boundary.



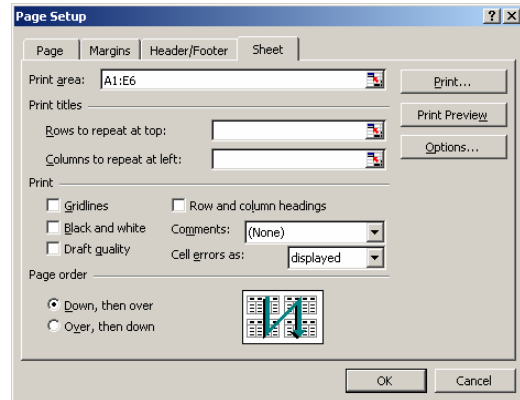
	A	B	C	D	E
1	CSCI 101	Fall 2004			
2	2/22/2005		Tests		
3	Name	Average	1	2	Final
4	Adams, Sue	76.5	88	77	71
5	Baker, John	81.4	91	75	82
6	Casel, Jane	79.8	66	77	88

Create page breaks between Baker and Casel and between Casel and Edwards, and one after Edwards.

Adjust the print area to include cells A1 to E7. Your spreadsheet should look like this:

	A	B	C	D	E
1	CSCI 101	Fall 2004			
2	2/22/2005		-----	Tests	-----
3	Name	Average	1	2	Final
4	Adams, Sue	76.5	88	77	71
5	Baker, John	81.4	91	75	82
6	Casel, Jane	79.8	66	77	88
7	Edwards, John	88.0	88	88	88
8			66.8	63.8	82

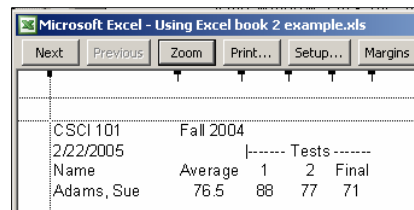
To specify the first two rows as the rows to be repeated at the top of each page (which is not the same as "page headers", another option for printing), click File | Page Setup, and in the Page Setup window, click the Sheet tab, which is illustrated to the right.



There is a fill-in box titled "Rows to repeat at top:", and to the right of that fill-in box, there is a button. Click this button to get the "Page Setup - Rows to repeat at top:" fill-in window. You can type in the rows you want repeated, but you can also click and drag on rows that you want repeated at the top of each page, and the row range that you dragged across is filled in the fill-in box for you, as illustrated here to the right:



Then click OK, or if you want to preview the print out, click the print preview button. The print preview window displays the first page. To see the next page, click the Next button, and so on.



Click on Page Break Preview to see the page breaks.

	A	B	C	D	E
1	CSCI 101	Fall 2004			
2	2/22/2005		-----	Tests	-----
3	Name	Average	1	2	Final
4	Adams, Sue	76.5	88	77	71
5	Baker, John	81.4	91	75	82
6	Casel, Jane	79.8	66	77	88
7	Edwards, John	88.0	88	88	88
8			67	64	82

Importing Text Files

If you have data in a text file, then it can be imported into an Excel spreadsheet if the data is formatted in the text file in one of several ways. Two common formattings are column formatted (fixed width format) or comma separated (comma delimited).

An example borrowed from the www.nfl.com website has this data (manipulated to be comma separated).

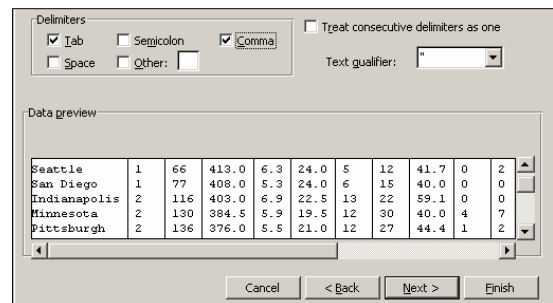
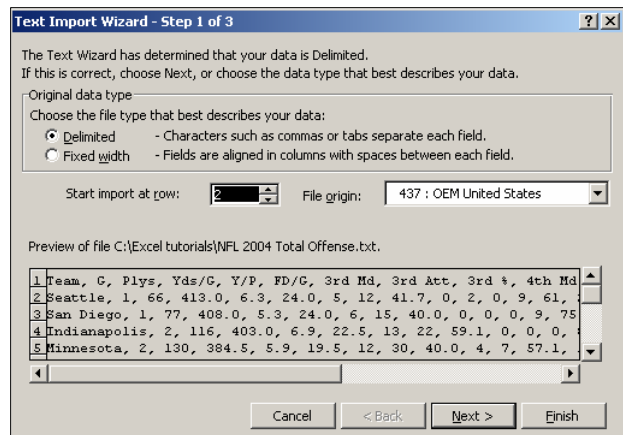
```
Team, G, Plys, Yds/G, Y/P, FD/G, 3rd Md, 3rd Att, 3rd %, 4th Md, 4th Att, 4th %, Pen, PenYds, TOP, TF, L
Seattle, 1, 66, 413.0, 6.3, 24.0, 5, 12, 41.7, 0, 2, 0, 9, 61, 28:54, 2, 0
San Diego, 1, 77, 408.0, 5.3, 24.0, 6, 15, 40.0, 0, 0, 0, 9, 75, 31:27, 1, 0
Indianapolis, 2, 116, 403.0, 6.9, 22.5, 13, 22, 59.1, 0, 0, 0, 8, 70, 25:48, 3, 2
Minnesota, 2, 130, 384.5, 5.9, 19.5, 12, 30, 40.0, 4, 7, 57.1, 14, 164, 31:07, 3, 0
Pittsburgh, 2, 136, 376.0, 5.5, 21.0, 12, 27, 44.4, 1, 2, 50.0, 8, 65, 32:36, 3, 2
St. Louis, 2, 121, 367.5, 6.1, 20.5, 15, 24, 62.5, 0, 0, 0, 8, 56, 27:46, 1, 1
Philadelphia, 3, 193, 363.3, 5.6, 23.0, 21, 41, 51.2, 0, 1, 0, 13, 114, 29:44, 7, 2
Denver, 1, 58, 338.0, 5.8, 18.0, 3, 12, 25.0, 2, 2, 100.0, 5, 24, 30:42, 1, 0
New York (A), 2, 126, 335.5, 5.3, 18.5, 8, 25, 32.0, 0, 0, 0, 12, 84, 27:33, 0, 0
New England, 3, 187, 326.0, 5.2, 20.0, 17, 39, 43.6, 1, 1, 100.0, 13, 87, 32:36, 2, 1
Green Bay, 1, 64, 306.0, 4.8, 24.0, 3, 10, 30.0, 0, 0, 0, 8, 55, 30:12, 3, 0
Atlanta, 2, 112, 299.5, 5.3, 16.0, 9, 23, 39.1, 4, 5, 80.0, 9, 56, 31:10, 2, 1
```

Assume that this data is in a file named "NFL.dat". To import the data into an Excel spreadsheet, click File | Open on the main menu, and open this file.

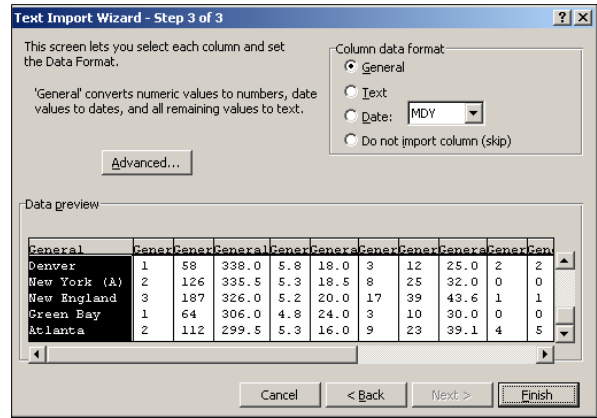
The Text Import Wizard window is displayed. there are two formatting options, Delimited and Fixed width. Click the Delimited option if it is not already selected.

Since the data file has a title in the first line which is not data, then in the Start import at row fill-in box, type 2 or click the up arrow to make it 2, then click the Next button.

The import wizard now displays the Step 2 window which lets you specify the delimiters. Click on the comma check box, and since the data was comma separated in the file, it will divide the data into columns indicating this with vertical bars in the display. You can use the right side scroll bar to scan down the data to verify that all of the data is correctly formatted into columns. Then click on the Next button to get Step 3 of the wizard.



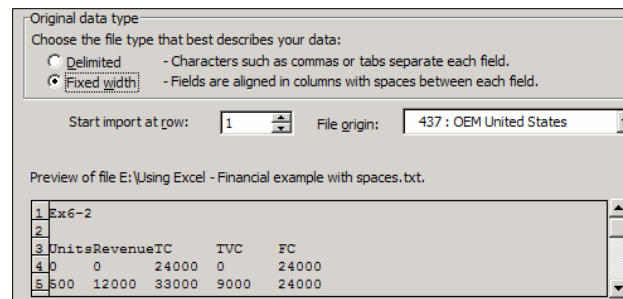
In Step 3, you select the datatype for each column. If you are satisfied with the "General" datatype, click finish. The General datatype will be text for columns with non-numeric data, such as the first column of city names, and the datatype will numeric general for columns with numeric data. If there are columns that you do not want to import, click on that column, and click the Do not import column (skip) format radio button.



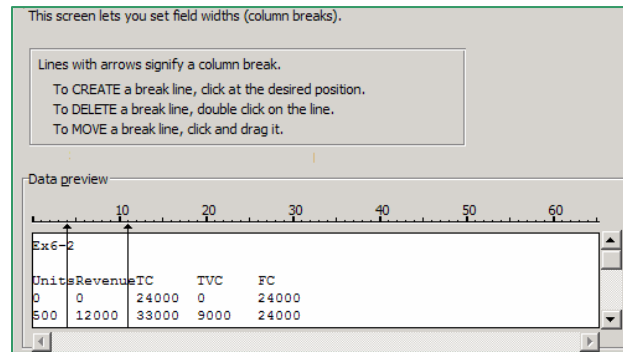
When you are done, click Finish.

If your file is column formatted, then the import process proceeds as follows. Here we use the NFL data file named NFLwithTabs.dat.

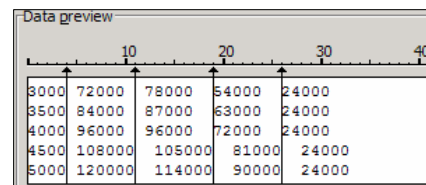
Again, click on File | Open, and open this file. The Import Wizard starts with Step 1. Click Fixed width if it is not already selected, and then click Next.



Excel try to guess at the location of the columns, and it may or may not be correct.



If you scroll down the data lines/rows, Excel continues to make adjustments to its guesses of the column locations. If you do not like its guesses, then you can click away one column line and click in another column line. Your spreadsheet should eventually have these columns. Notice that the numbers do not have to match up exactly, as long as Excel considers them to be in the proper columns.



Note that in this example, the column formatting of the original data was not sufficiently unambiguous to allow Excel to figure it out.

	A	B	C	D	E
1	Ex6-2	2			
2					
3	Unit	sRevenu	eTC	TVC	FC
4	0	0	24000	0	24000
5	500	12000	33000	9000	24000
6	1000	24000	42000	18000	24000
7	1500	36000	51000	27000	24000
8	2000	48000	60000	36000	24000
9	2500	60000	69000	45000	24000
10	3000	72000	78000	54000	24000
11	3500	84000	87000	63000	24000
12	4000	96000	96000	72000	24000
13	4500	108000	105000	81000	24000
14	5000	120000	114000	90000	24000
15	5500	132000	123000	99000	24000
16	6000	144000	132000	108000	24000
17	6500	156000	141000	117000	24000
18	7000	168000	150000	126000	24000
19	7500	180000	159000	135000	24000
20	8000	192000	168000	144000	24000

Using Help

As with many software systems, the help feature is not helpful to the novice user. Hopefully, after you have gone through the material above, you can begin to make use of the Excel help. Begin by clicking on the **Help** option of the menu bar.

There are a number of help options. If you like the Office Assistant, which is the paperclip thing, then click on Office Assistant.

The paperclip icon is displayed. If you click on the paperclip, then you will get a bubble over the paperclip in which you can type a question, or just a word. In the illustration to the right, the word "address" has been entered, and Excel help has attempted to give a brief list of topics that relate to the word address. However, what you may be interested in may not be in this list. The Office Assistant may give a different list if you try again.

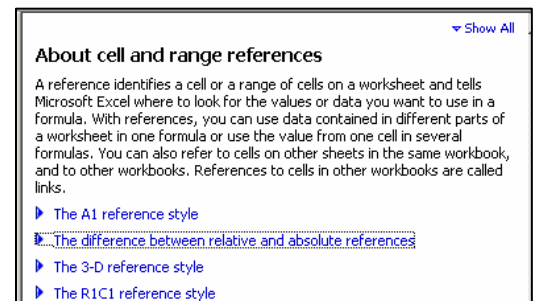
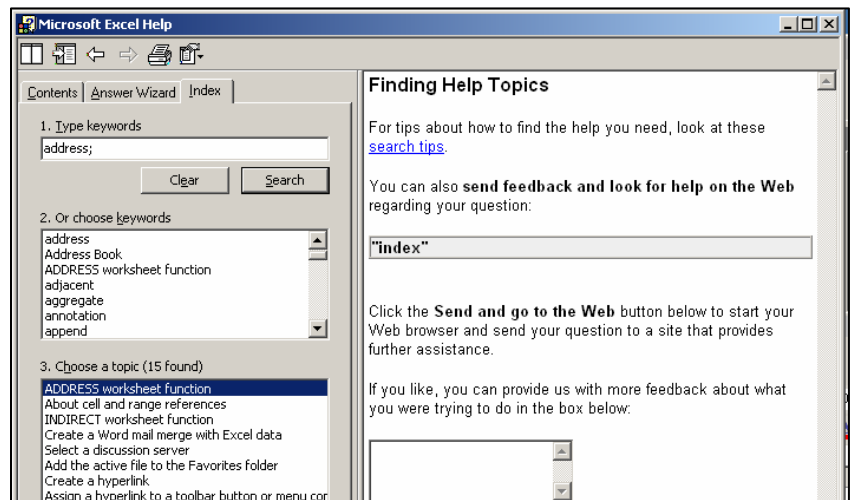
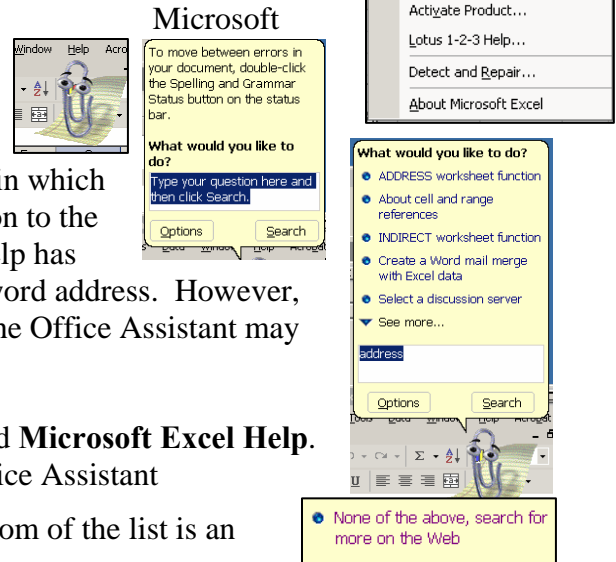
A second option in the help menu is the first option titled **Microsoft Excel Help**. When you click on this option, you may still get the Office Assistant

but if you click on the **See more...** item, then at the bottom of the list is an

option for **None of the above** and if you click on that item, then you get a general help window illustrated here.

In this picture, the **Index** tab has been selected and the **1. Type keywords** input box has the word "address" already entered. In the **2. Or other keywords** list box, the word "address" is listed, and the list box **3. Choose a topic** has a listing of the various topics that relate to the word "address".

The second topic listed is "About cell and range references" and if you click on that topic, the help window pictured here is displayed. Note that there are four bullets for four subtopics. If you click on a bullet, then the text for that subtopic is displayed. If you click on the **Show All** bullet at the top, then text for all bulleted items is displayed.



Since the issue of relative and absolute addressing is important in Excel and other spreadsheet programs, the text for the topic **The difference between relative and absolute references** is displayed here.

Relative and Absolute Cell References/Addressing

In the accounting spreadsheet example from tutorial 1, you entered formulas such as **+B2+B3+B4** (into cell B5). The cell references B2, B3, and B4 and called **relative** cell references or cell addresses. They are relative because when you copy the range of cell B5 with this formula involving the cells B2, B3 and B4, and then store this copied formula in cell C5, Excel adjusts the formula for the new cell, making the formula **+C2+C3+C4**, that is, it makes the formula **relative** to the cell address into which the formula is copied.

This is very desirable feature - unless you do not want it to work that way.

The A1 reference style
The difference between relative and absolute references

Relative references A relative cell reference in a formula, such as A1, is based on the relative position of the cell that contains the formula and the cell the reference refers to. If the position of the cell that contains the formula changes, the reference is changed. If you copy the formula across rows or down columns, the reference automatically adjusts. By default, new formulas use relative references. For example, if you copy a relative reference in cell B2 to cell B3, it automatically adjusts from =A1 to =A2.

	A	B
1		
2		=A1
3		=A2

Copied formula with relative reference

Absolute references An absolute cell reference in a formula, such as \$A\$1, always refer to a cell in a specific location. If the position of the cell that contains the formula changes, the absolute reference remains the same. If you copy the formula across rows or down columns, the absolute reference does not adjust. By default, new formulas use relative references, and you need to switch them to absolute references. For example, if you copy a absolute reference in cell B2 to cell B3, it stays the same in both cells = \$A\$1.

	A	B
1		
2		=\$A\$1
3		=\$A\$1

Copied formula with absolute reference

Absolute Addressing

Here is an example where we do NOT want relative addressing to work. In the second example of a grade book spreadsheet, a row of percentage weights has been inserted in row 4, and then the formula for in cell B4 for the Sue Adams average has been written as

$$=(C4*C5)+(D4*D5)+(E4*E5)$$

If this formula is now copied to cells B5 through B8, then the copied formulas are incorrect. For example, the copied formula in cell B5 is

$$=(C5*C6)+(D5*D6)+(E5*E6)$$

where all of the addresses have been adjusted up one row. Now the multiplier of cell C6 is the value in C5 (which is a grade of another student) and NOT the value in C4 which is the percentage weight of the test 1 grade.

B5		fx = (C4*C5)+(D4*D5)+(E4*E5)				
	A	B	C	D	E	F
1	CSCI 101	Fall 2004				
2	11/4/2004		-----	Tests	-----	
3	Name	Average	1	2	Final	
4	Weights		0.25	0.35	0.4	
5	Adams, Sue	77.35	88	77	71	
6	Baker, John		91	75	82	
7	Casel, Jane		66	77	88	
8	Edwards, John		88	88	88	
9			83.3	79.3	82.3	

B6		fx = (C5*C6)+(D5*D6)+(E5*E6)				
	A	B	C	D	E	F
1	CSCI 101	Fall 2004				
2	11/4/2004		-----	Tests	-----	
3	Name	Average	1	2	Final	
4	Weights		0.25	0.35	0.4	
5	Adams, Sue	77.35	88	77	71	
6	Baker, John	19605	91	75	82	
7	Casel, Jane	18997	66	77	88	
8	Edwards, John	20328	88	88	88	
9			83.3	79.3	82.3	

We want to copy the formula written in B4 to the other cells, but we do not want the cell address for the percentage weights to change when the copy is made.

The solution is to make the references to cells C4, C5 and C6, the percentage weight cells, **absolute** cell references, which means that when copied in a formula, the cell addresses will not be adjusted.

A cell reference is made **absolute** by putting a dollar sign, \$, before the column letter or the row number, or both. In illustration to the right, the formula in cell B4 has been written with absolute addresses for the references to cells C4, D4, and E4, that is, these references have been written as **\$C\$4**, **\$D\$4** and **\$E\$4**, so the formula in B4 is

$$=(\$C\$4*C5)+(\$D\$4*D5)+(\$E\$4*E5)$$

When this formula is copied into cells B5 through B8, the copied formulas in those cells are correct. For example, the formula in B8 is

$$=(\$C\$4*C8)+(\$D\$4*D8)+(\$E\$4*E8)$$

which correctly references the percentage weights in cells C4, D4 and E4.

B5		fx = (\$C\$4*C5)+(\$D\$4*D5)+(\$E\$4*E5)				
	A	B	C	D	E	F
1	CSCI 101	Fall 2004				
2	11/4/2004		-----	Tests	-----	
3	Name	Average	1	2	Final	
4	Weights		0.25	0.35	0.4	
5	Adams, Sue	77.4	88	77	71	
6	Baker, John	81.8	91	75	82	
7	Casel, Jane	78.7	66	77	88	
8	Edwards, John	88.0	88	88	88	
9			83.3	79.3	82.3	

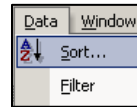
Sorting

Excel provides a sort facility that allows you to sort columns or rows of data, either in ascending order (the default) or descending order. For example, in the grades spreadsheet, you might want to sort the students from highest to lowest based on one of the columns of grades.

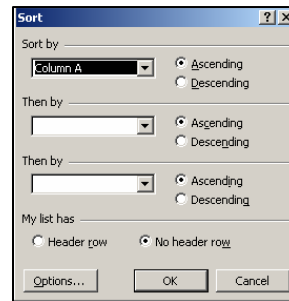
Let's sort on the column with the course "Average"s, that is, column B. Since only the rows with the student's grades are to be sorted, then we want rows 5 through 8 sorted using the averages in cells B5 through B8.

	A	B	C	D	E
1	CSCI 101	Fall 2004			
2	11/18/2004		----- Tests -----		
3	Name	Average	1	2	Final
4	Weights		25%	35%	40%
5	Adams, Sue	77.4	88	77	71
6	Baker, John	81.8	91	75	82
7	Casel, Jane	78.7	66	77	88
8	Edwards, John	88.0	88	88	88
9			55.7	53.2	66

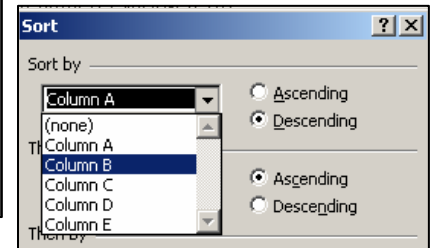
Begin by highlighting the cells in the rectangular block from A5 to E8. Then click on the **Data** main menu option, and then click on the **Sort** option.



The **Sort** window is displayed.



Click in the drop down arrow for the list box under the **Sort by** label, and a list of the columns in the range, A5 to E8, that is, columns A thru E that you specified. In this case, the list box displays the list starting with **Column A** and ending with **Column E**. Since we want to sort by the averages in column B, click on **Column B** in this list. Then click on the **Descending** radio button so that the rows will be sorted in descending order by the values in column B.



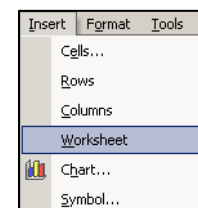
Finally, click the **OK** button at the bottom of the sort window.

Now the grades spreadsheet has the rows sorted in descending order by the Average value of column B.


	A	B	C	D	E
1	CSCI 101	Fall 2004			
2	11/18/2004		----- Tests -----		
3	Name	Average	1	2	Final
4	Weights		25%	35%	40%
5	Edwards, John	88.0	88	88	88
6	Baker, John	81.8	91	75	82
7	Casel, Jane	78.7	66	77	88
8	Adams, Sue	77.4	88	77	71
9			55.7	53.2	66

To illustrate sorting further, let's create a long column of random numbers, and then sort them. Excel has a random number generating function named **RAND()** (or **rand()**) that generates a number between 0 and 1, randomly. It's not something that you will probably ever use again, but it's a fast way to create a long list of numbers.

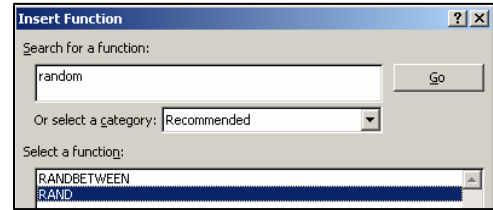
Create an empty spreadsheet (click Insert | Worksheet or click on the new worksheet icon next to the open file icon).



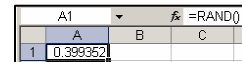
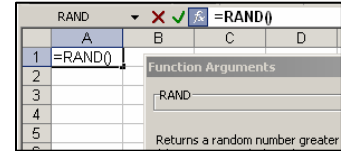
Click cell **A1** and type the **=RAND()** function.

Alternatively, click on the drop down arrow of the Σ icon, and at  the bottom of the drop down list, click on **More functions**.

The **Insert Function** window is displayed. In the **Search for function** box, type "random" and a list is displayed with two functions. Click on the **RAND** function, and it will be inserted in cell **A1**.



You may get a popup window titled **Function Arguments** but you can ignore it, and just click its **OK** button to make it go away.

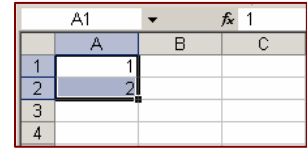


Cell **A1** has the **RAND()** function in it. Copy **A1** to **A2** thru **A100** to create a list of 100 random numbers.

Now,

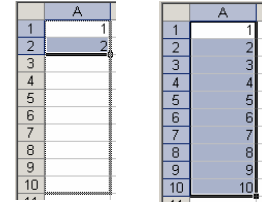
Auto Fill

On occasion, you want to have rows numbered down the first column, or columns numbered across a row. If its more than a few numbers, and it might take some time to type the sequence of numbers, you can have Excel do it for you. This is called auto fill or data fill. To have Excel auto fill the rows in column A with the numbers 1, 2, 3, ..., enter 1 in A1 and enter 2 in A2, then click on A1 and drag the cursor into A2. The spreadsheet looks like this:



	A	B	C
1	1		
2	2		
3			
4			

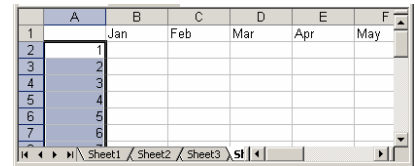
Now move the cursor on top of the small black square in the lower right corner of cell A2, and the cursor will change to a small black cross. If you now click and drag this square cursor downwards down column A, Excel highlights the cells in column A that you have dragged the cursor over, and when you release the button, it automatically fills the cells with the sequence of numbers.



	A
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Freezing Row and Column Titles

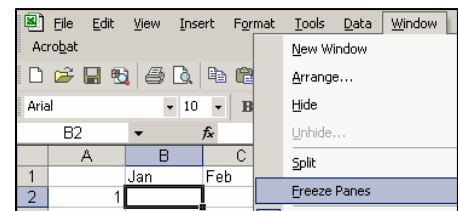
Once your spreadsheet has more rows or columns than can be displayed on your screen, then you may find it inconvenient to have the row or column titles scroll off the screen when you move to a cell far to the right or down. For example, starting in cell A2, enter the numbers 1, 2, 3, ... into about the first 50 cells of column A, then enter the months into the first row, columns B through M. If you spreadsheet is made small, then only a few rows and columns are visible.



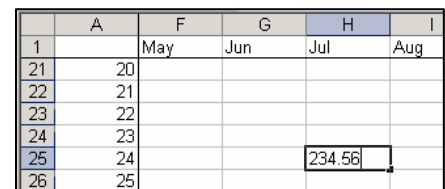
	A	B	C	D	E	F
1		Jan	Feb	Mar	Apr	May
2	1					
3	2					
4	3					
5	4					
6	5					
7	6					

If you were entering a value in the cell for July on the row with number 24 in column A (this would be cell H25), the spreadsheet would not show the months at the top nor the row number to the left. Instead, we want to have the first row and the first column displayed regardless of what cell is current, that is, we want to freeze row 1 and column A at in the spreadsheet window.

To freeze row 1 and column A, click in cell B2, which is the cell one row below row 1 and one column to the right of column A. The click on the Window item on the menu bar, and click on the Freeze Panes option.



Next, move to cell H25 and enter a value. Notice that the row 1 month titles and the column A numbers are still displayed.



	A	F	G	H	I
1		May	Jun	Jul	Aug
21	20				
22	21				
23	22				
24	23				
25	24			234.56	
26	25				

You can unfreeze these row and column by clicking Window | Unfreeze Panes.

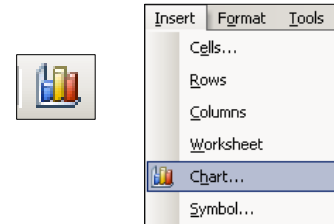
Graphs and Charts

Excel has simple to use graphing capabilities. Enter the following data in a new spreadsheet. Presumably, this represents an independent variable, X, and its dependent variable, Y, that is, Y is presumably determined by X, at least, in a statistical sense.

	A	B
1	X	Y
2	0	0
3	0	1
4	1	1
5	2	3
6	3	4
7	4	6

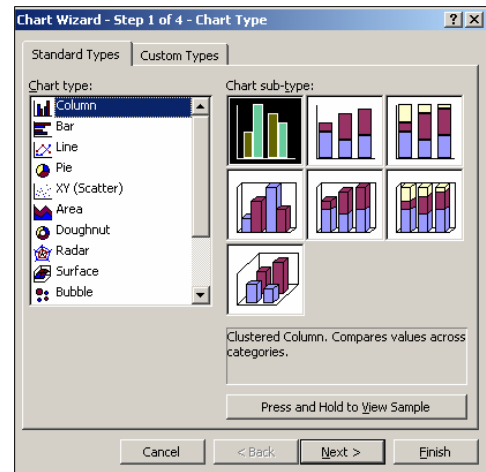
Begin by highlighting the data values that you want to chart.

Then click on the chart icon, or on the main menu bar, click on Insert | Chart.

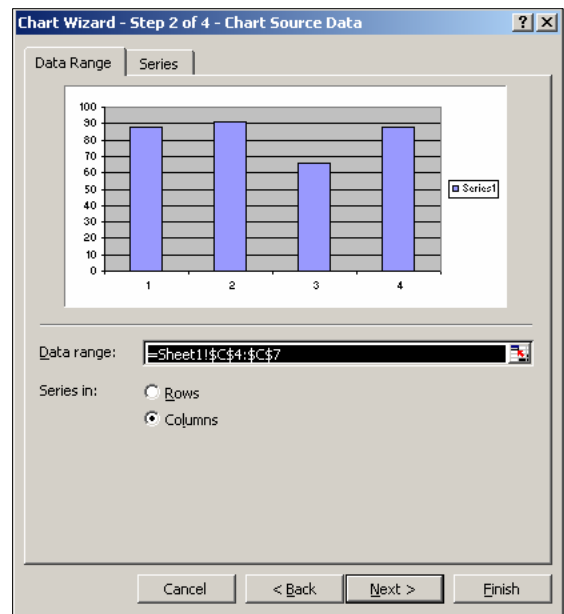


The Chart Wizard window is displayed.

Click on one of the chart types that you want to use, and then click on the form icon of that type of chart, then click the Next button.



The Step 2 window is displayed.



Statistical Analyses in Excel

An Invoice Example

Importing Text Files