

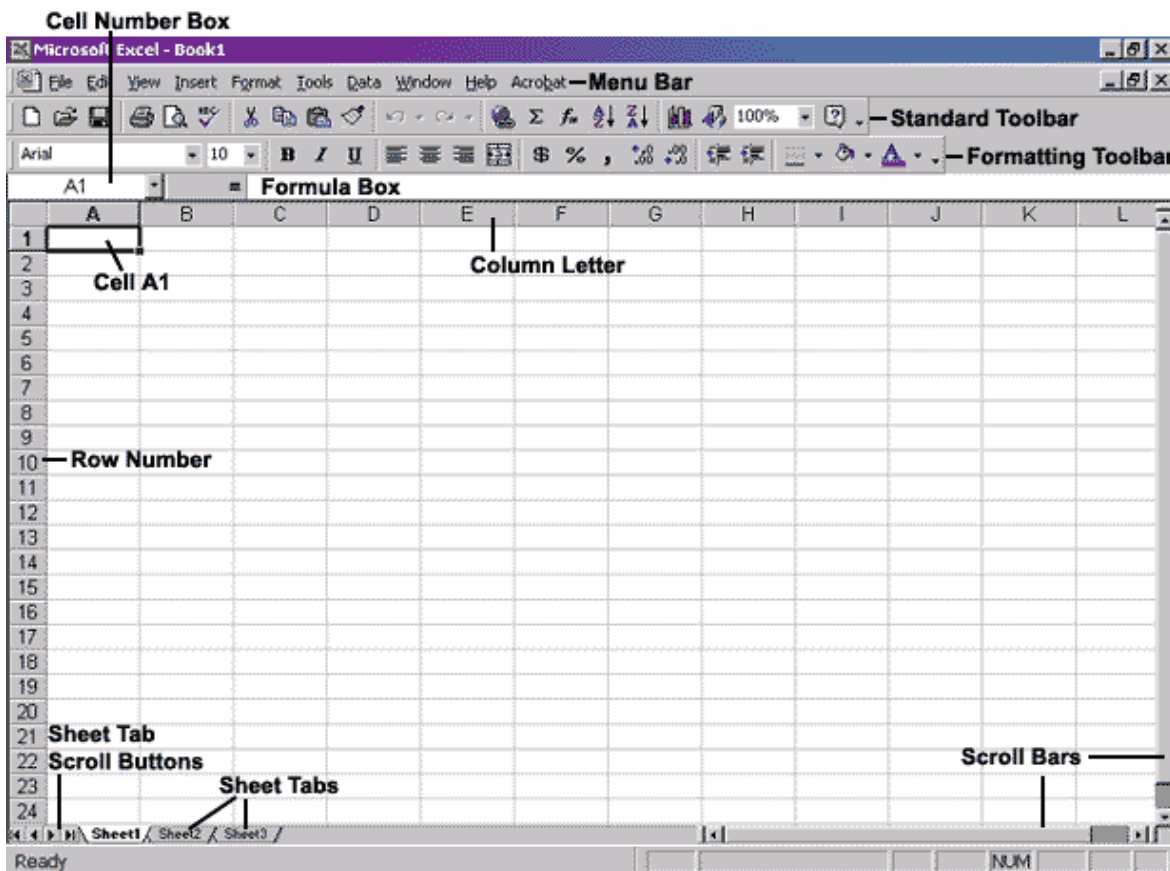
# Introduction to Microsoft Excel 2000\*

Excel is a spreadsheet program that organizes data in rows and columns and performs automatic calculations. Before you can begin using Excel proficiently, you must understand how to manage spreadsheets. Each Excel file is a **workbook** that consists of several **worksheets**. The worksheet is a grid of **columns** (designated by letters) and **rows** (designated by numbers). The intersection of a column and a row is called a **cell**. Each cell on the spreadsheet has a cell address, or **cell reference**, that lists the column letter and the row number. Cells can contain text, numbers, or mathematical formulas. Figure 1 presents the fundamental elements of an Excel spreadsheet.

## Getting Started

### To open Excel:


1. Click on the Start button.
2. Click on Microsoft Excel.



\* Adapted from *A Guide to Microsoft Office 2000 Professional*

Figure 1 Fundamental Elements of an Excel Spreadsheet

**To open an existing workbook:**

1. Open Excel.
2. Select “Open” from the File menu or click on the Open  shortcut button.
3. Locate where the existing workbook has been saved.
4. Click “Open.”

## Fundamental Elements of an Excel Spreadsheet

**Cell Cursor:** This solid outline can be moved to select a cell. Notice in Figure 1 that cell A1 has been selected.

**Cell Number Box:** This displays the current location, or cell reference, of the cell cursor.

**Column Letter:** Columns are identified by letters at the top of the spreadsheet.

**Fill Handle:** This is the solid square in the lower, right-hand corner of the cell cursor. Dragging the fill handle will AutoFill cell contents.

**Formatting Toolbar:** These shortcut buttons allow the user to format data.

**Formula Box:** This displays the contents of the cell selected.

**Menu Bar:** Drop-down menus allow the user to perform actions within the program.

**Row Number:** Rows are identified by numbers down the left side of the screen.

**Scroll Bars/Buttons:** These bars/buttons are used to display rows and columns that are currently not visible.

**Sheet Tabs:** Clicking these tabs allows the user to navigate from one spreadsheet to another within the same workbook.

**Standard Toolbar:** These shortcut buttons allow the user to perform the most commonly performed actions within the program. See Figure 2 below.

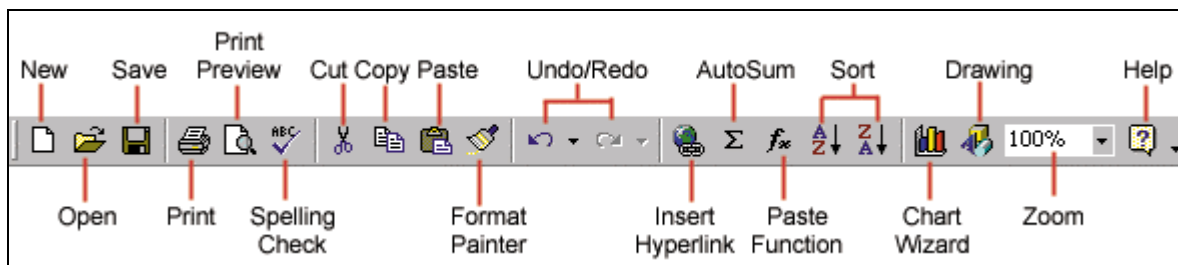



Figure 2 Standard Toolbar

## Opening New Spreadsheets

It may be necessary to utilize more than one spreadsheet within a workbook to organize several tables or charts of related information. To access a new sheet from within the workbook, simply click on the Sheet Tabs in the lower left corner of the Excel spreadsheet. (Refer back to Figure 1.) Sometimes it is more appropriate to begin a new workbook.

### **To open a blank workbook:**

1. Click on the File Menu.
2. Select “New” as displayed in Figure 3.
3. You can also click the “New”  shortcut button on the Standard Toolbar.



**Figure 3 Opening a New Workbook**

## Navigating Cells

Either the mouse or the keyboard can be used to navigate around the Excel spreadsheet. To use the mouse, simply click in the cell. Table 1 highlights the keyboard navigation techniques.

**Table 1 Keyboard Navigation Techniques**

<b>Movement</b>	<b>Key stroke</b>
One cell up	up arrow key
One cell down	down arrow key or ENTER
One cell left	left arrow key
One cell right	right arrow key or TAB
Top of the worksheet (cell A1)	CTRL+HOME
End of the worksheet (last cell containing data)	CTRL+END
End of the row	CTRL+right arrow key
End of the column	CTRL+down arrow key

## Entering Data

Spreadsheets store three types of data:

- 1. Labels:** Text, which *cannot* be used in calculations
- 2. Values:** Numbers, which *can* be used in calculations
- 3. Times/dates:** May be used in some calculations

By default, labels are left aligned while values, times, and dates are right aligned. To enter data, select a cell and begin typing. As data is typed, it will appear in the Formula Box.

- Pressing the Enter key leaves the data.
- Pressing the Tab key enters the data then selects the next cell in that row.
- Pressing an Arrow Key enters the data and selects the next cell in the direction of the arrow.
- Pressing the Escape key cancels data entry.

## Highlighting Cells


Before you edit or format data in a spreadsheet, you must first select the designated cells. Dragging the mouse pointer from one cell to another highlights a block of cells.

**Highlight an Entire Row:** Click on the row number.

**Highlight an Entire Column:** Click on the column letter.

## Editing Cell Contents

When editing cell contents, it is helpful to know the following pointers.



- Double-clicking in a cell displays a blinking cursor and allows you to edit text.
- Selecting a cell and then clicking in the Formula Bar allows you to edit text.
- Pressing the Delete key on the keyboard can erase cell contents.
- If cell contents are erased by mistake, press the Undo  button.

## Changing Column Width

A column's width can affect the way Excel displays data; therefore, it is often necessary to adjust this. There are two quick ways to adjust the width of a column.

1. Point the mouse arrow at the boundary line between two columns. When the arrow turns into a double-headed arrow, drag the width of the column.
2. Another technique is to double-click on the column's right boundary. The column width will automatically adjust in order to best fit its contents.

## Sorting Data

Excel allows you to sort data alphabetically in ascending  or descending  order. Be careful that you select (highlight) the entire cell range you wish to sort. If, for instance, you choose to sort the selected items in ascending order, they will be ordered from the beginning of the alphabet, the lowest number, or the earliest date depending on which cell contains the insertion point. If you previously sorted a list on the same spreadsheet, Excel will use the same sorting option.

### **To sort data:**

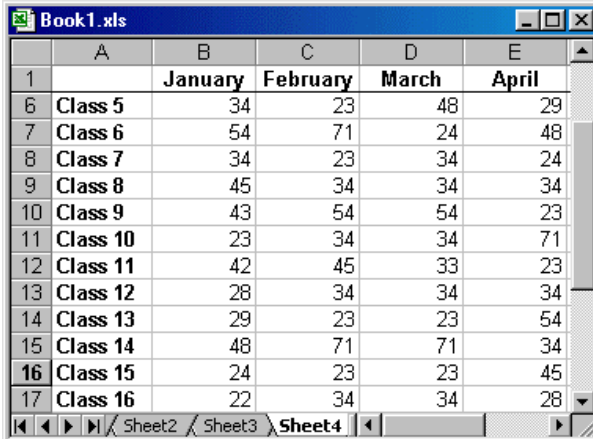
1. Select/highlight the data you wish to sort.
2. Click on either the ascending or descending sort button on the Standard Toolbar.

## Freezing Panes

You can freeze panes to keep column and row headings in view when scrolling a large worksheet.

### **To freeze panes:**

1. Click the number of the row below the row that should remain frozen at the top of the worksheet.
2. Select **Window**→**Freeze Panes** from the menu bar.
3. To remove the frozen panes, select **Window**→**Unfreeze Panes**.



The screenshot shows an Excel window titled 'Book1.xls'. The spreadsheet has columns A through E and rows 1 through 17. Row 1 is frozen, containing the headers 'January', 'February', 'March', and 'April'. Rows 6 through 17 contain data for 'Class 5' through 'Class 16'. The values in the data rows are: Class 5 (34, 23, 48, 29), Class 6 (54, 71, 24, 48), Class 7 (34, 23, 34, 24), Class 8 (45, 34, 34, 34), Class 9 (43, 54, 54, 23), Class 10 (23, 34, 34, 71), Class 11 (42, 45, 33, 23), Class 12 (28, 34, 34, 34), Class 13 (29, 23, 23, 54), Class 14 (48, 71, 71, 34), Class 15 (24, 23, 23, 45), and Class 16 (22, 34, 34, 28). The status bar at the bottom indicates 'Sheet2 / Sheet3 / Sheet4'.




	A	B	C	D	E
1		January	February	March	April
6	Class 5	34	23	48	29
7	Class 6	54	71	24	48
8	Class 7	34	23	34	24
9	Class 8	45	34	34	34
10	Class 9	43	54	54	23
11	Class 10	23	34	34	71
12	Class 11	42	45	33	23
13	Class 12	28	34	34	34
14	Class 13	29	23	23	54
15	Class 14	48	71	71	34
16	Class 15	24	23	23	45
17	Class 16	22	34	34	28

Figure 4 Freeze Panes


Freeze panes has been added to row 1 in Figure 4. While you scroll down the worksheet, row 1 will remain stationary, so you can view the row headings.

## Formatting Cell Contents

Formatting data in Excel is much like formatting in other Microsoft Office programs. You must first highlight the cells you wish to format; then you can execute the following options.

**Alignment:** Selecting the align buttons on the Formatting Toolbar will align cell contents left , center , and right .

**Font Style:** Bold **B**, Italic *I*, and Underline U can be applied from the Formatting Toolbar.

**Font Face and Size:** Using the Formatting Toolbar, the font face and size  can be adjusted.

For even more formatting options, such as color and borders, select the Format menu.

### To format cells:

1. Click on the Format menu.
2. Select "Cells."
3. Select the tab that corresponds with the command you wish to perform.

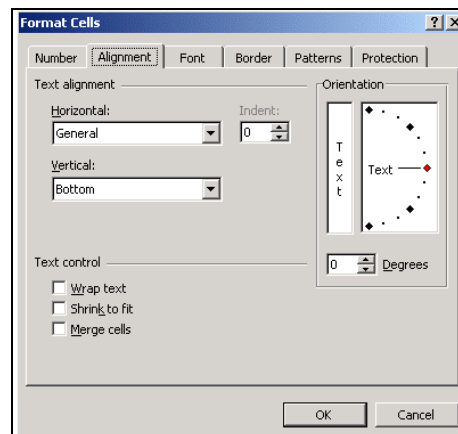


Figure 5 Format Cells Dialog Box

## Formatting Numeric Data

A numeric value is automatically formatted when you include a dollar sign (\$), percent sign (%), or a decimal position with the number. You can also format numeric data manually.

### To format numeric data:

1. Click on the Format menu.
2. Select “Cells.”
3. Select the “Number” tab as displayed in Figure 6.

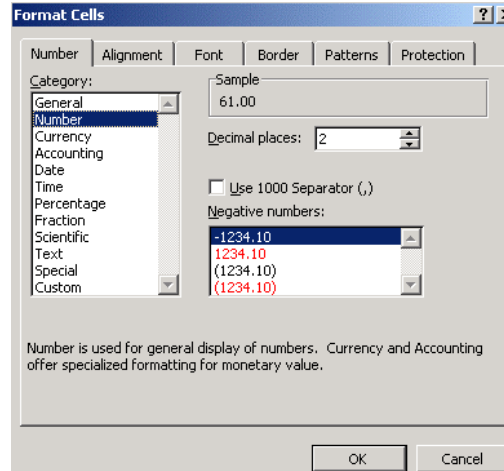


Figure 6 Formatting Numeric Data

## Inserting and Deleting Rows and Columns

Rows and columns can be inserted between data in a spreadsheet. Likewise, rows and columns can be deleted from a spreadsheet. Rows and columns are inserted and deleted in much the same way.

### To insert a new row or column:

1. Click on the row number or column letter. (The mouse pointer will turn into a plus sign.)
2. Right-click the mouse.
3. Select “Insert.”
4. The row will be inserted above the row you have selected, and new columns will be inserted to the left of the column you have selected. The row numbers and column letters will change accordingly.

### To delete either a row or a column:

1. Click on the row number or column letter.
2. Right-click the mouse.
3. Select “Delete.”

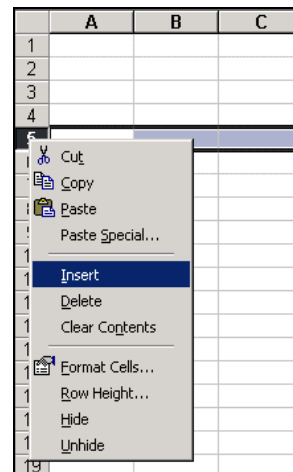


Figure 7 Inserting a row

## Saving in Excel

Remember that each Excel file is a workbook containing several spreadsheets; therefore, Excel saves the entire workbook as one file.

### To save in Excel:

1. Click on the File Menu.
2. Select “Save As.”
3. The **Save As** dialog box will open, as displayed in Figure 9.
4. Select where the file will be saved from the **Save in:** drop-down menu.
5. Enter a file name.
6. Click the “Save” button.

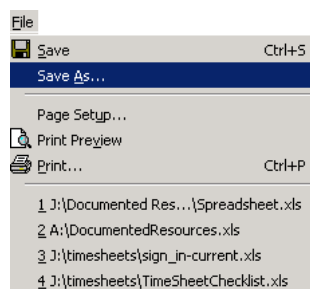


Figure 8 Saving

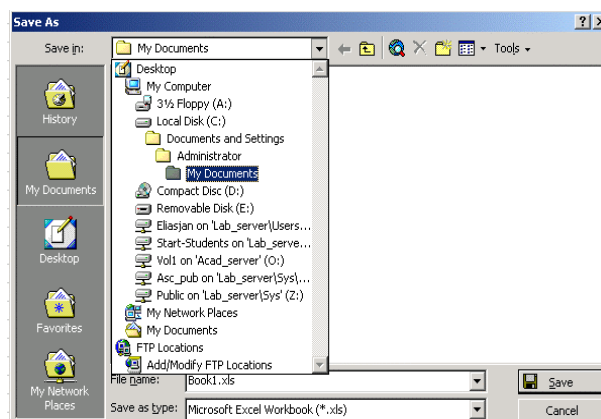


Figure 9 Save As Dialog Box

## Performing Calculations

A primary benefit of using Excel is that the program allows you to perform calculations. For further convenience, you are able to execute calculations either by using formulas or functions.

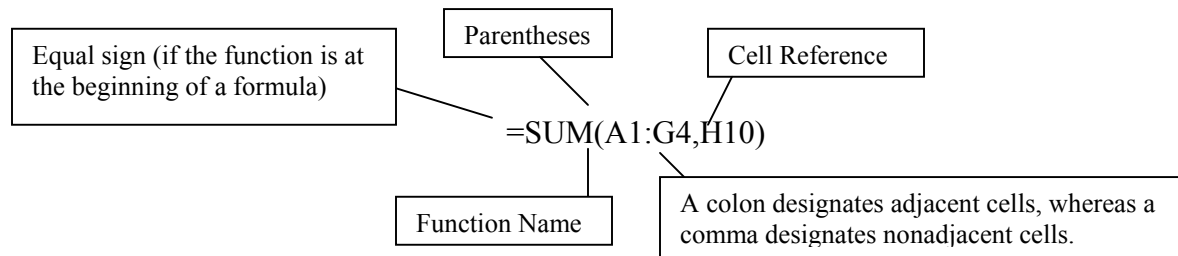
**Formulas** are mathematical equations used to calculate values. Formulas in Excel must begin with an equal sign (=). Entering an invalid formula will result in an error message, because Excel evaluates a formula in a specific order: from left to right following the order of operations. The following mathematical operators can be used in a formula:

Parentheses            ( )

Exponentiation	^
Multiplication	*
Division	/
Addition	+
Subtraction	-

Remember the Order of Operations from math class?  
Try this mnemonic device:  
**Please Excuse My Dear Aunt Sally**

**Functions** are predefined formulas that perform some of the most common calculations in Excel by using specific values, called arguments, in a particular order. The structure of a function begins with the function name, followed by an opening parenthesis, the arguments for the function (cell references or absolute values), and a closing parenthesis. If the function starts a formula, type an equal sign (=) before the function name. The following example shows the SUM function.



**HINT!** The quickest way to sum adjacent cells is to use the AutoSum function  $\Sigma$ .

## Entering Formulas and Using Functions

### To enter a formula:

1. Begin with an equal sign.
2. You can either type the cell references manually or you can select the cells with the mouse.

Once you type an equal sign, Excel will display the function names in a drop-down list to provide shortcuts to the most common calculations. See Figure 10.

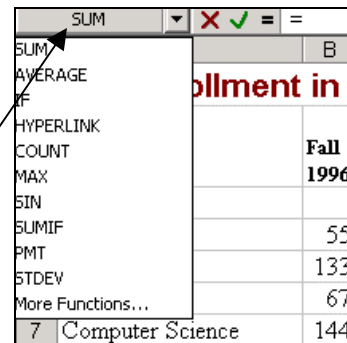


Figure 10 Function Drop-Down List

## Copying Adjacent Cells using Autofill

Cell contents, as well as formulas, can be copied to adjacent cells using the Fill handle. The Fill handle is the solid square in the lower, right-hand corner of a selected cell or block of cells. The technique of copying data or formulas using the Fill Handle is called **AutoFill**.

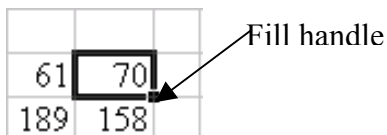


Figure 11 Selected Cell

When a formula is copied, the cell references in the formula are automatically relatively adjusted to the new row or column.

## Creating Charts

A second advantage of Excel is that it easily creates graphic representations of selected data. You must first determine which type of chart is best suited for the information you wish to present. Table 2 lists the most commonly used chart types. Excel provides a Chart Wizard, which is a series of steps designed to guide you through the process of creating a chart. Before beginning you must select the cell range you wish to chart.

Table 2 Common Chart Types

Bar and Column charts	These two chart types are very similar. <i>Bar</i> is a horizontal bar chart and <i>column</i> is a vertical bar chart. The length and height of the bar is proportional to the value it represents. For this reason, these charts are useful for comparing the differences between values.
Line chart	A line chart can include several series of data where each line represents a series. Because points on the line represent the values in a series, line charts are useful in displaying the difference of data over

	time.
Pie chart	A pie chart can only include one series of data, with each slice of the pie representing a value from the series. Pie charts are best for charting data that is a percentage of the whole.
(XY) Scatter chart	An XY (scatter) chart shows the relationships among values in several data series. A scatter chart displays uneven intervals — or clusters — of data and is commonly used for scientific data.

## Using the Chart Wizard

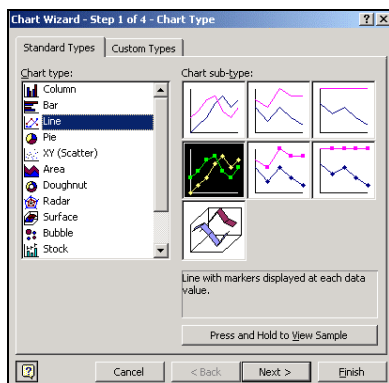


Figure 12 Select the Chart Type

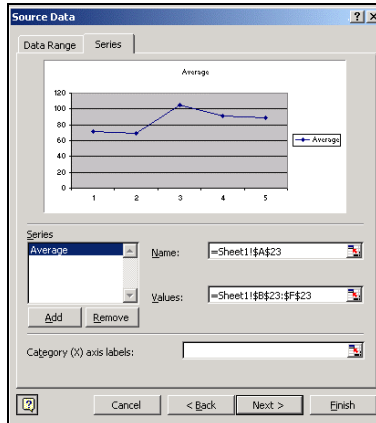



Figure 13 Source Data

### To use the Chart Wizard:

1. Select the cell range you wish to chart.
2. Click on the Chart Wizard shortcut button  on the Standard Toolbar.
3. Select the Chart Type and Chart Sub-Type as featured in Figure 12.
4. Within in the Chart Wizard, click “Next” to proceed and “Back” to make changes.
5. If you are charting more than one data series, click on the “Series” tab, as displayed in Figure 13.
6. Click on the Collapse Dialog Button (the small square in the right side of the field) to select a series from the spreadsheet as displayed in Figure 14. Click the button again to return to the Chart Wizard.
7. Determine your Chart Options by choosing to display titles, data labels, gridlines, and/or the legend. (You can reformat these settings later if necessary.) See Figure 15.
8. Finally, determine whether the chart will appear as a new sheet in your workbook or as an object within the current worksheet. See Figure 16.
9. Once your chart is inserted into your workbook, you can right-click on any object to make changes to formatting.

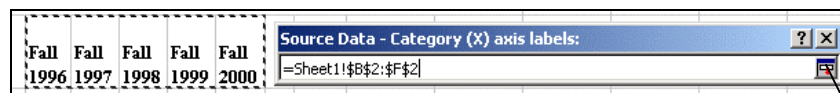


Figure 14 Selecting Source Data from the Spreadsheet

Collapse Dialog Button

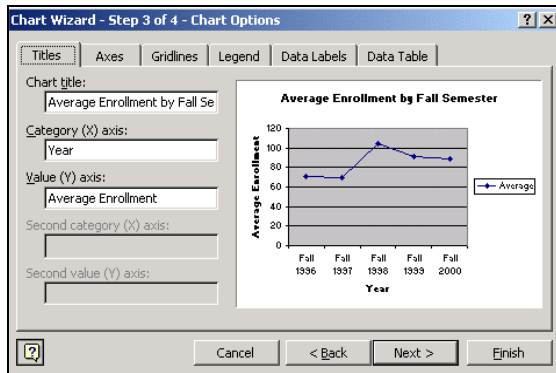


Figure 15 Chart Options

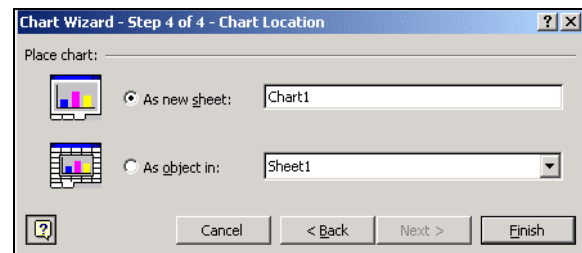


Figure 16 Chart Location

## Printing in Excel

Oftentimes an Excel spreadsheet may be too wide to print on a single sheet of paper. In this event, Excel prints the spreadsheet on consecutive sheets starting from the leftmost column and proceeding to the right. However, the user can change the print orientation or adjust page breaks to help the spreadsheet fit onto the desired number of pages.

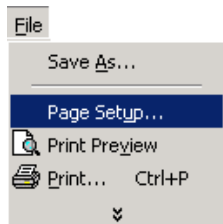
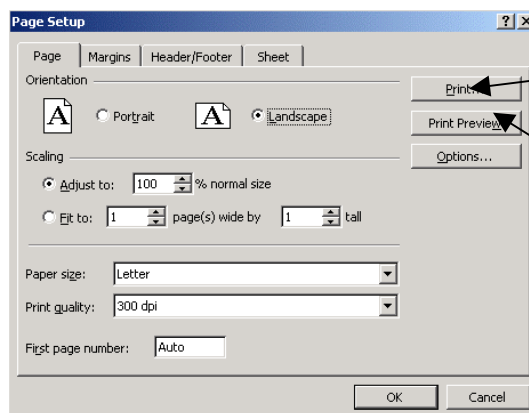



Figure 17 Page Setup

### To print in landscape:

1. Click on the File menu.
2. Select "Page Setup" as displayed in Figure 17.
3. When the Page Setup dialog box appears, select the "Page" tab.
4. Click on "Landscape" orientation as shown in Figure 18.
5. Click "OK."



You have the option of printing from the Page Setup dialog box.

Preview your print job by clicking here, or on the Print Preview  shortcut button on the Standard Toolbar.

### To show gridlines:

1. Click on File menu.
2. Select "Page Setup."
3. Select the "Sheet" tab.
4. Check the box to print gridlines as show in Figure 19.
5. Click "OK."

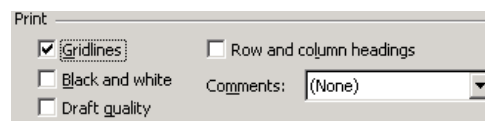
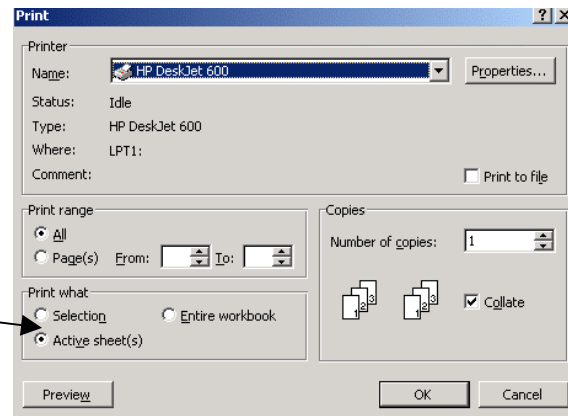


Figure 19 Print Gridlines

**To print spreadsheets:**

1. Click on File menu.
2. Select "Print."
3. Once the Print dialog box appears, you can specify whether to the print active sheet(s) or the entire workbook.
4. Click "OK."



**Figure 20 Print Dialog Box**

