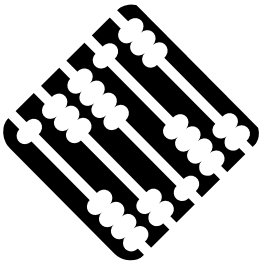
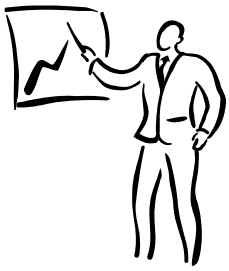
Introduction to Excel 2007



$$y = mx + b$$



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Course Description

Microsoft Excel 2007 is a spreadsheet program which enables you to set up and maintain tables to analyze data and create charts from it if desired. This course will cover creating and updating spreadsheets, including the use of formulas and functions to perform calculations. We will also talk about formatting spreadsheets and creating graphical representations of the data in a spreadsheet.

Please note that Microsoft Office 2007 utilizes a new interface concept and many Excel 2007 features will be found in different places than in Excel 2003. If you are transitioning between these versions, it may be beneficial to use the Excel 2007 help function to locate them, or to visit Microsoft's interactive site which allows selecting options from an Excel 2003 type interface and shows the location of the equivalent in Excel 2007. It can be accessed at this URL: http://office.microsoft.com/en-us/help/HA101491511033.aspx

Microsoft Office 2007 can be obtained at educational discount pricing through various sources. WVU departments should visit the Software Licensing Information Center (SLIC) to purchase this software for installation on WVU owned systems: http://oit.wvu.edu/slic/

Getting Started

Launching Excel 2007

Excel can be started either by selecting the program from the Windows start menu, or if there is an existing Excel shortcut available on your computer, it can be double-clicked to launch the program.

Open Excel by going through these steps:

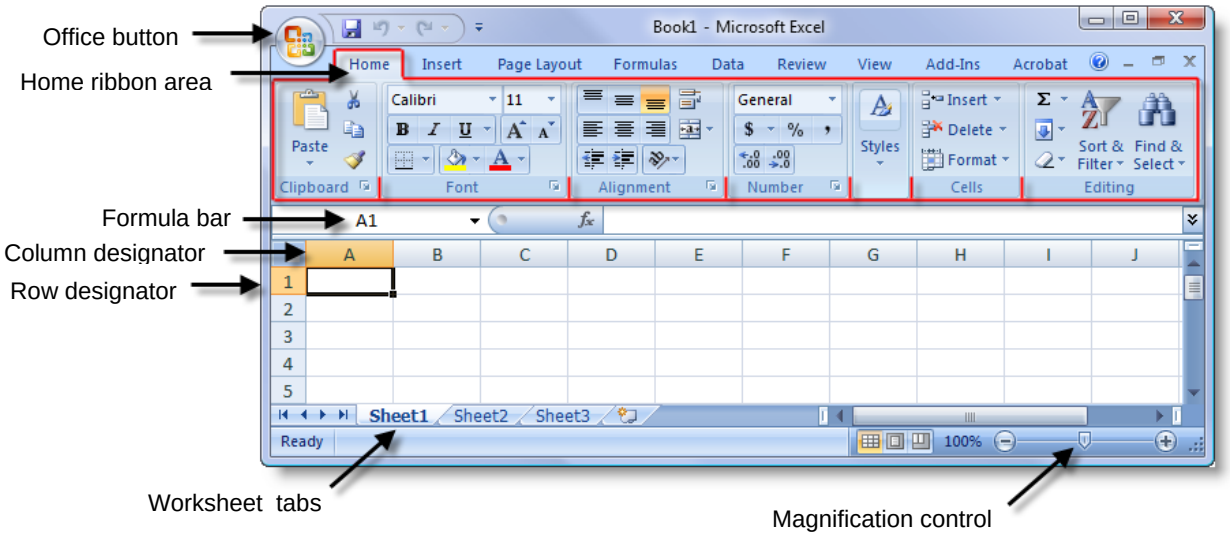
1. Click the Start button
2. Select **All Programs**
3. Select **Microsoft Office**
4. Click **Microsoft Office Excel 2007**

The Excel Interface

Excel files are called workbooks, and they can contain multiple worksheets. Each sheet has its own tab in the bottom left area of the application window.

An Excel worksheet is a grid of cells arranged into vertical columns and horizontal rows. Columns are identified by letters and rows are identified by numbers. The place where a row and column meet is called a cell. A cell is referred to by its address, which is the column letter followed by the row number, e.g. A1, B5, Q37.

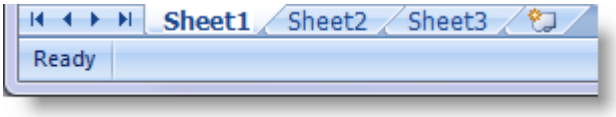
Text, numbers, or mathematical formulas can be entered into cells.



Note that Excel 2007 uses tab-like ribbons across the top. Each ribbon consists of a group of options that display when it is selected.

By default, a new workbook will have three worksheets that can be selected using the tabs in the lower-left area. A number of worksheets can be stored under one filename.

To access a specific worksheet, simply click on the tab that bears the sheet's name (e.g., Sheet3). The sheet presently selected will have its tab displayed in white with its name in bold, while the unselected sheets will be a darker color. In this example, "Sheet1" is selected.

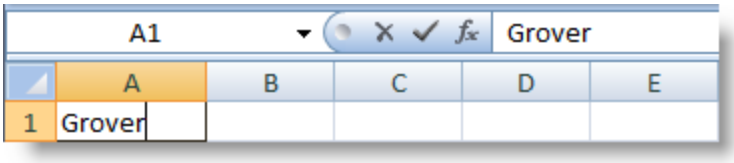


Entering Information

Click once in the cell in which you want to type information.

Type the numbers or text that you want to appear in the cell.

Important: Numbers should be typed as plain numbers without any special characters such as percentage signs, dollar signs, or commas. Number format can be changed later by using the options found here: Home ribbon > Cells group > Format > Format Cells



Notice that what you are typing appears not only in the cell but also on the Formula Bar.

To cancel the information you have typed, click on the ✗ or press the **Esc** key on your keyboard.

If the text you typed is acceptable, do one of the following:

- Click on the ✓ on the Formula Bar to remain in place leaving edit mode
- Press the **Enter** key to move down to the cell beneath the current one
- Press the **Tab** key to move to the next cell to the right
- Press one of the 4 arrow keys on the keyboard to move in a specific direction
- Use the mouse to click in another cell

Activity: Practicing Data Entry

1. In cell A1, enter your first name and press the down arrow key
2. In cell A2, enter a very large number (your dream salary)
3. In cell A3, enter a number between 0 and 1 with decimal places
4. In cell A4, press **Ctrl** and **;** together to enter today's date

File Management

Saving your work

Be sure to save regularly! Do not wait until you are completely finished creating the worksheet before saving it. If you don't save, and then experience a computer problem, it's likely that you will end up losing work.

1. Click the **Save** button

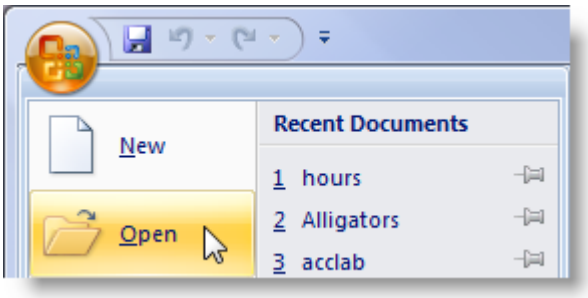
   The "Save As" window will appear the first time you save a workbook
2. Select a location for the file to be saved
3. Provide a unique name in the "File name:" space
4. Click **Save**

Opening files

There are three common ways to do this:

Method 1

1. In Excel, click the round Office button
2. Select **Open**
3. Locate the file you want to open
4. Double click the file



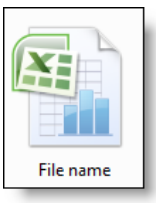
Method 2

1. In Excel, click the Office button
2. Select a workbook from the list of Recent Documents

   These are the files that Excel had open most recently. If the location the file was previously in is currently accessible, and the file still exists under the same name, this will open it

Method 3

1. Outside of Excel, locate the desired file in Windows
2. Double click the file
   If Excel was not open at the time, this will launch Excel and open the selected file.



Changing Existing Information

There are different ways to edit information previously entered into a cell:

Editing allows for making specific changes

1. Double click the cell containing information to be edited.
2. Note the cursor flashing within this area. Move the cursor to the desired position and add or delete characters as needed.
3. Commit the changes by pressing [Enter], [Tab], or clicking ✓ in the formula bar

Note: It is also possible to click to select a cell and edit the contents in the formula bar

Replacing totally overwrites existing cell contents

1. Click once to select the cell containing information to replaced
2. While the cell showing the old information is selected, type the new information
3. Commit the changes by pressing [Enter], [Tab], or clicking ✓ in the formula bar

Erasing empties the contents of a cell

1. Click once on the cell containing information that needs to be erased or highlight multiple cells containing information that needs to be erased.
2. Press the **Delete** key on the keyboard.

Undo

Excel keeps track of recent actions that you executed. If you accidentally delete something or make a change that you do not want to keep, you can use **Undo** to reverse that action.

Undo one action at a time

Click on the Undo icon on the Tool Bar.

Every time you click on the Undo icon, Excel cycles backwards through your most recent unsaved actions and undoes them one at a time.

Undo multiple actions at once

Click on the downward pointing arrow to the right of the Undo icon. Select an action from the list. Excel reverses the selected action *and* all of the actions above it.

Redo

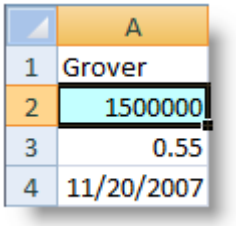
If you decide that you really did not want to undo an action, click on the Redo button. Notice that Redo also has an arrow beside it, providing the option to redo more than one action at a time.

Selecting Cells

Single cells

1. Click on the cell that you want to select

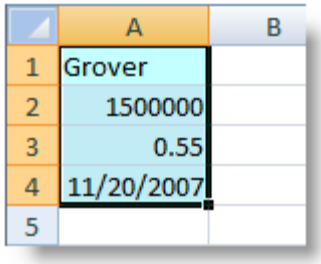
   Notice that the cell becomes surrounded by a black border. This means that this cell is selected, as cell A2 is in the illustration to the right.



Range of cells

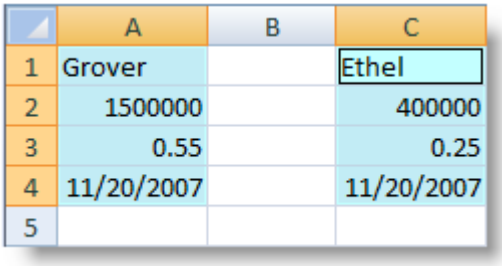
1. Click and hold down in a cell while dragging the mouse to select additional cells in the desired range.
2. Release the mouse when you have selected all of the cells that you want.

Notice that the first cell in a range is not highlighted like the rest of the cells in a range.



Multiple Ranges

1. Click and hold the left mouse button while dragging the mouse to select more than one cell. Release the mouse button after you have selected the required cells.
2. Hold down the **Ctrl** key and use the mouse to select another range of cells. Repeat this procedure for each of the ranges required.
3. Release both the mouse and the Ctrl key after you have selected all of the desired cell ranges.



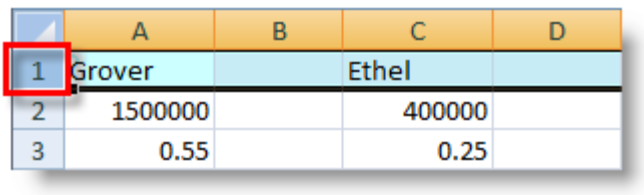
Selecting Columns or Rows

Selecting an Entire Column

Click the column letter at the top of the spreadsheet window.

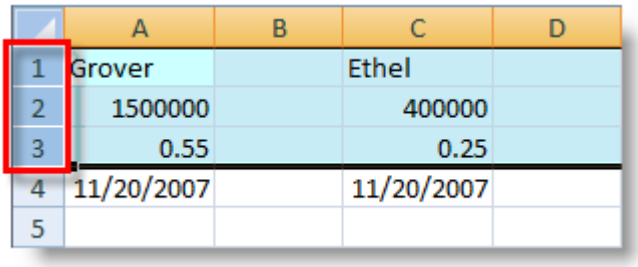
Selecting an Entire Row

Click the row number on the left side of the spreadsheet window.



Selecting a Contiguous Range of Columns or Rows

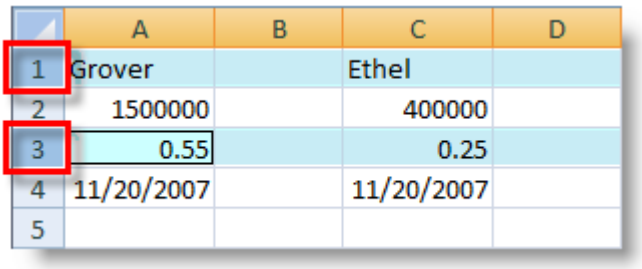
1. Click and hold the mouse button while dragging it across the row numbers or column letters that you want to select
2. Release the mouse button after everything you want is selected



Note: It is also possible to click once to select the first cell desired in a range and while holding down the **Shift** key, click the last cell. This can be useful when selecting large ranges of cells, where click and drag are not as practical.

Selecting Non-Contiguous Columns or Rows

1. Click on the first row number or column letter that you wish to select
2. Hold down the **Ctrl** key
3. Click on another row number or column letter
4. Continue clicking until you have selected all of the rows or columns that you want, and then release the **Ctrl** key.



Activity: Practicing editing and data selection techniques

1. Change the information in one or more cells
2. Replace the contents of a cell
3. Erase the contents of a cell
4. Undo this operation
5. Click and drag your mouse to select several contiguous cells
6. Select an entire row
7. Select two columns next to each other
8. Select two areas that are not adjacent to each other

Copying and Moving

To copy information so that it remains in its original cell(s) and a duplicate appears elsewhere:

1. Select the cell(s) containing the information that you wish to copy, and click the **Copy** icon located under the Home ribbon / Clipboard group. Alternatively, you can press **Ctrl**-**c** on the keyboard or right click the selected area and click **Copy**.
2. Select the upper-left most cell of the cell area into which you want to duplicate the information.
3. Click the **Paste** button. Alternatively, press **Ctrl-v** on the keyboard, or right click the destination cell and select **Paste**.

Moving information from one location to another is easily achieved. There are two ways to go about this: Cut and Paste method, and the drag and drop method.

Method 1 - Cut and Paste

1. Select the cell(s) containing the information that you want to move to another location.
2. Click the **Cut** icon under the Home ribbon Clipboard group (or press **Ctrl**-**x**). Initially the selected area will be shown with moving lines around it. This information will disappear from its original position once a paste action has been done.
3. Select the location to which the information is to move.
4. Click the **Paste** button. Alternatively, press **Ctrl**-**v** on the keyboard, or right click the destination cell and select **Paste**.

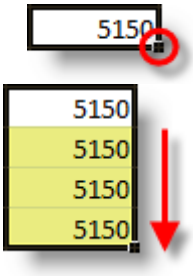
Method 2 - Drag and Drop

1. Select the range of cells you desire to move to another location.
2. With the range selected, move the mouse pointer over one of the dark sides (somewhere other than the lower right-hand corner) and the large white plus sign cursor (✚) changes into a 4-headed arrow.
3. Using the 4-headed arrow, click and drag the block of cells to the desired location.

The Fill Handle

Copying Information

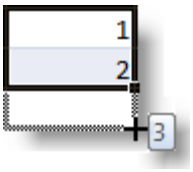
An alternative to using Copy and Paste when you wish to copy information or formulas to adjacent cells is to take advantage of the AutoFill feature.



If you want to copy the contents of a cell to the cells below it, position the cursor over the small black box in the lower right corner of the cell. As the large white plus sign cursor (✚) changes to a thin black one (+), click and drag it downward to fill the desired cells.

Extending a Series

The Fill Handle can also be used extend a recognizable pattern such as those in a sequence of numbers, names of days, or names of months. In most cases, if the first couple of cells are filled and selected, this will be enough to establish a pattern that Excel can recognize and continue.



In this example, we selected the first two cells of an intended pattern where the number “1” was in the first cell and “2” was in the second cell. Highlighting these and dragging the fill handle downward shows the number “3” intended to be placed in the next cell to the right of the (+). Dragging down farther will continue the pattern in additional cells such as in these examples:

Numbers	Odd	Reverse	Years	Months	Days
1	1	12	2008	January	Monday
2	3	11	2009	February	Tuesday
3	5	10	2010	March	Wednesday
4	7	9	2011	April	Thursday
5	9	8	2012	May	Friday
6	11	7	2013	June	Saturday
7	13	6	2014	July	Sunday
8	15	5	2015	August	Monday
9	17	4	2016	September	Tuesday
10	19	3	2017	October	Wednesday
11	21	2	2018	November	Thursday
12	23	1	2019	December	Friday

Formulas and Functions

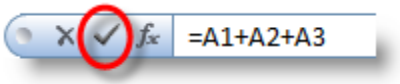
Excel allows the use of formulas and functions in worksheets. These can contain specific numbers or cell references. Whenever the contents of a cell will be treated as a formula or function, the expression entered will always begin with an equals sign (=). By default, formulas referencing cells containing numbers will automatically update the calculated value if the numbers in the cells are changed.

Formulas

Formulas allow you to build calculations from scratch. In some cases there may be pre-existing functions included in Excel that will be more efficient to use.

1. Select the cell in which you want the result of the calculation to appear
2. Type an **=**
3. Type the desired formula and select one of the following to commit and run it:

   Press the **Enter**, press the **Tab** key, or click the ✓ on the formula bar



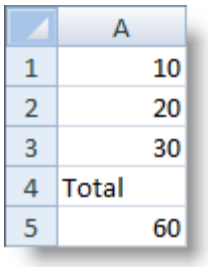
Activity: Formulas

1. On a fresh sheet, enter the following values in cells A1, A2, and A3 respectively:

   10 **20** **30**

2. In cell A4, type the word **Total**
3. In cell A5 type the following formula and press the **Enter** key:

   =A1+A2+A3



	A
1	10
2	20
3	30
4	Total
5	60

If everything has worked correctly, **60** be should displayed in cell A5

4. Use the editing techniques you have learned to change the current value in cell A3 to **70**

As Excel worksheets are dynamic in nature, the formula automatically reevaluates the contents of the cells and displays 100 once the change is made.

Order of Operations

The order of operations is important when working with formulas in Excel. Items are treated as being read from left to right by default, and ones of higher order are processed before those of lower order.

An easy mnemonic to recall the order of operations is:

"Please Excuse My Dear Aunt Sally".

The letters at the beginning of each of the words in this phrase can be used to help remember that the order of operations in Excel is:

Parentheses, Exponents, Multiplication or Division, Addition or Subtraction

Parentheses	Exponents	Multiplication	Division	Addition	Subtraction
( )	^	*	/	+	-

Activity: Order of Operations

If we wish to add 8+2 and then multiply that by 5, we might expect to get 50 as a result. As we read from left to right it seems logical to add 8 and 2 to get 10, and then multiply by 5 to get 50. Although Excel generally reads from left to right, it also follows the order of operations and performs multiplication before performing addition. Try the following and then we will use parenthesis to raise the order of the addition:

1. In cell C1, type the following and press **Enter**:

   =8+2*5

   We are given 18 as a result because 2 and 5 were multiplied first, then 8 was added.

2. Edit the contents of cell C1 to place parenthesis around the addition as follows:

   =(8+2)*5

3. Press **Enter** to display the desired results.

Functions

Selecting Ranges of Cells

In working with functions, one often needs to select ranges of cells. As an example, to reference the collection of cells A1, A2, and A3, the notation **A1:A3** would be used. This has the first and last cells separated by a colon, and it indicates the use of all the cells from A1 to A3 inclusive. The cells need not be in the same row or column. For example, the range B2:D5 indicates the rectangle of cells with cell B2 in the upper left corner and cell D5 in the lower right corner.

You can directly type in the cell ranges you want to use, or you can use the mouse to select the range of cells that you want by clicking on the first cell and then dragging over the rest of the desired range.

Note that any cell in your specified range(s) that is blank will be ignored when computing values. By contrast, a cell that contains zero (0) will be included. There is, thus, no difference between a blank cell and a zero cell in computing a sum, but a zero cell would contribute to a count function value while a blank cell would not.

Using Functions

Excel has a vast array of built-in functions available that can facilitate calculations (e.g. sum, average, max, min, count). These functions may be selected from a menu, or simply typed in directly.

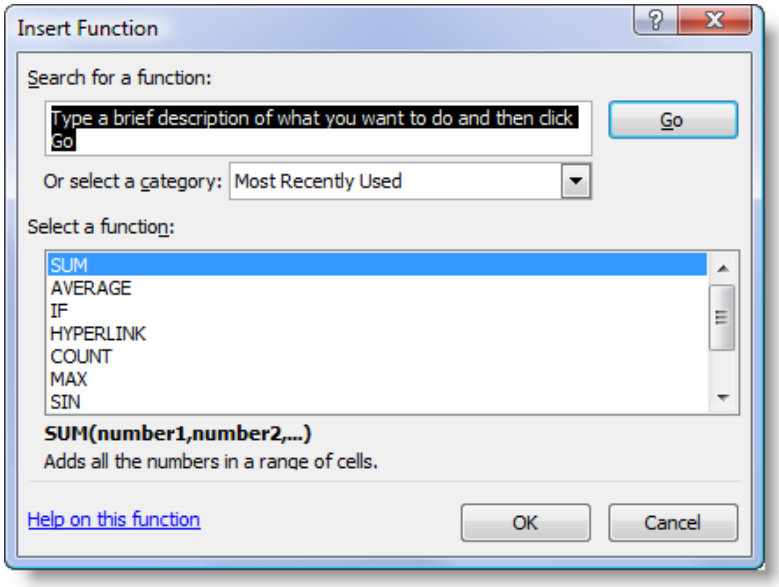
Using the Insert Function Menu

1. To use a function, first select the cell in which you want the answer to appear
2. Click the **Function Wizard** button

3. In the Insert Function window that appears, determine which function you wish to use. There are two options available to select the appropriate function:

   You can describe what you wish to do and click **Go** to let Excel suggest the function

   You can select a category and choose a function from the "Select a Function" list of choices and click **OK**



4. Follow any prompts that may appear after you select a function. You are usually prompted to specify the range of numbers you want to include in your calculation.

Activity: Typing in a Function

Previously we created a formula of **=A1+A2+A3** which added the values in those cells. While this is not much to type as there are only three cells involved, it would be inefficient if we wanted to add a larger range of cells. Specifying the first and last cells in a range using a colon (**:**) between them can be a big time saver. Let's return to cell A5 on that sheet and replace that formula with a more efficient function.

1. Select cell A5
2. Type the following to replace the previous formula:

   =SUM(A1:A3)

3. Press **Enter** to commit this change

   Notice that the value of 100 is still displayed.

AutoSum

On the Home ribbon is the Σ AutoSum button. This tool will let you quickly compute a total for rows or columns of numbers.

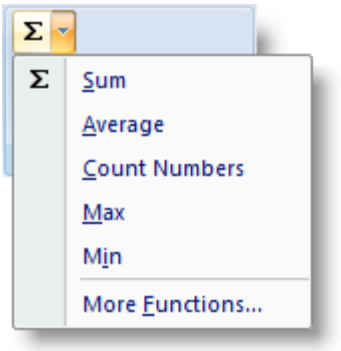
Beside it, you will see a drop down arrow, which gives you access to some of the most commonly used functions, as well as a “More Functions” link to the Insert Functions dialog discussed above.

To make use of the AutoSum feature:

1. First select the cell where you want the result of the calculation to appear.
2. Click on the **AutoSum** button on the standard toolbar (the Σ symbol itself as opposed to drop down arrow).
3. Excel looks for adjacent cells which it thinks you may be trying to total up. If you require a different range, use your mouse to highlight those cells; otherwise, accept what Excel selects for you by pressing the **Enter** key. The result of the calculation will be entered into the cell you initially chose.

Activity: AutoSum

1. Copy the contents of cells A1:A3 to cells E1:E3
2. Click in cell E4 as the intended destination for the results
3. Click the Σ button and E1:E3 will select automatically
4. Press **Enter** to confirm the range you desire

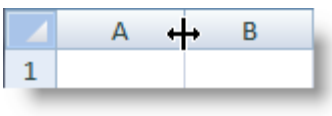


Manipulating the Spreadsheet

It is common to adjust column widths and row heights, and also insert and remove columns and rows within a spreadsheet as it evolves. The techniques below can save considerable time over needing to move data around manually to get added information in desired locations. Excel is also smart enough to adjust functions and formulas when columns and rows are inserted so that the locations of information previously referenced are updated. It is always a good idea to double check your figures after making changes.

Changing Column Width

1. Move the mouse pointer to the right of the column you want to widen, or narrow, so that it rests on the black column border. At this point, the mouse changes shape to a two-headed horizontal arrow.



2. Clicking and dragging the mouse to the left will decrease the column width; dragging it to the right will increase the column size.

An alternative to this method is to double-click on the black column border; Excel will automatically adjust the column to the size of the longest entry within that column.

If you see ###### in a column, don't worry! It just means that the column is not wide enough to display the contents of the cell and it needs to be made wider to display the entire number.

Changing Row Height

1. Move the mouse pointer to the bottom of the row that you wish to make taller or shorter so that it rests on the black row border. Again, as in the previous example, the mouse will change to a two-headed arrow, this one vertical.
2. Clicking and dragging the mouse down will increase the row height, and moving it up will decrease it

Inserting Columns/Rows

Single Column

1. Click a column designator letter to select a column.
2. Choose **Home ribbon** > **Cells group** > **Insert button**

   A blank column is inserted to the left of the column you initially selected

Multiple Columns

1. Select a number of contiguous columns equal to the number of desired new columns.
2. Choose **Home ribbon** > **Cells group** > **Insert button**

   Note that additional options are available under the down arrow to the right of the **Insert** button, but we need only click on the worded portion of this control.

   Blank columns are inserted and existing ones are moved to the right.

Single Row

1. Click the numeric row designator for the row that you want to shift down to make room for a new blank row
2. Choose **Home ribbon > Cells group > Insert button**

   A blank row is inserted and the row in which your pointer was located is shifted down

Multiple Rows

1. Select a number of contiguous rows above which you want to insert an equal number of blank rows
2. Choose **Home ribbon > Cells group > Insert button**

   Blank rows are inserted and the existing rows are shifted down.

Alternative: Right click the column or row where you wish to insert additional ones and select "Insert"

Deleting Columns/Rows

Single Column or Row

1. Click once on the letter of the column or the number of the row that you wish to delete
2. Choose **Home ribbon > Cells group > Delete button**
3. Make certain that you choose “Delete”; do not choose “Delete Sheet” because that would get rid of your entire spreadsheet.

Pressing the Delete key after selecting the column would only remove the cells’ contents from the column, leaving an empty column in place.

Alternative: Right click the column or row that you wish to delete and choose **Delete** from the shortcut menu.

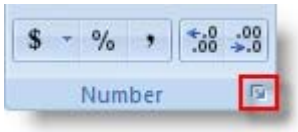
Multiple Columns or Rows

1. Select the multiple columns or rows that you want to delete, whether contiguous or non-contiguous, using the usual method described earlier
2. Choose **Home ribbon > Cells group > Delete button**

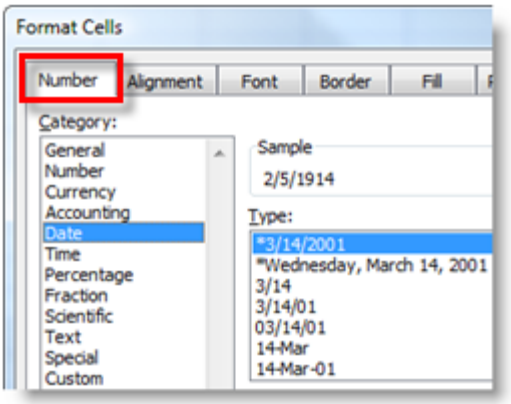
Formatting Numbers

The Number group of the Home ribbon allows access to aspects such as currency, percent, comma, and manipulation of decimal precision. To change the format of cells, simply select the range desired and click an option in the number group.

In the lower-right corner of the number group, there is a clickable arrow button that opens the Format Cells dialog to allow access to more in-depth formatting options.



Within the Format Cells dialog, one can specify options such as date, time, fraction, scientific, text, and others. As items are selected on the Category side of the window, options on the right change to reflect that particular format.



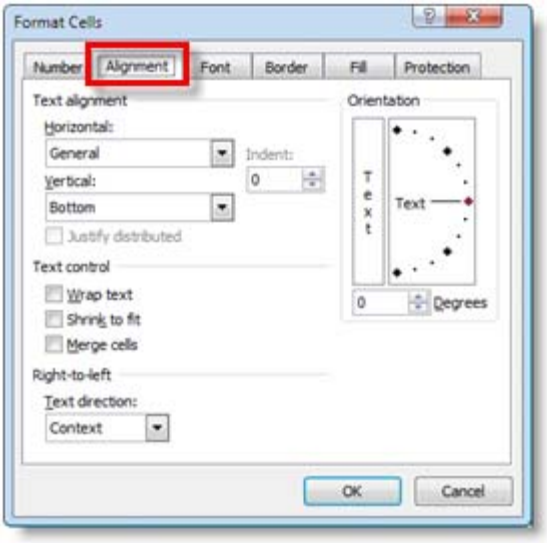
Alignment of Text and Numbers

Information within a cell is aligned left or right by default, as numbers or letters respectively. This positioning can be overridden to align left, right, or center by using the appropriate buttons in the Alignment group of the Home ribbon. The Alignment tab of the Format Cells dialog offers some additional options:

Choose the appropriate option from the drop-down menus for **Horizontal** or **Vertical** text alignment to position information within the cell(s).

Wrap text is valuable for making a lengthy text entries fit within reasonable horizontal space.

Orientation allows changing the degree of rotation of the information within a cell. This can be nice to use for labels as it allows for slanting text and can make them stand out more from other aspects of a worksheet.



Charts

A chart allows for displaying data graphically. This can be very effective, especially when used for presentations and reports. Excel charts are automatically updated when you change the data they are created from because they are linked to the data. The Charts group of the Insert Ribbon shows clickable drop-down menus for selecting common chart types. It also has a clickable button in the lower-right corner to reveal all possible chart types.

Creating Charts

In creating charts, one must first decide which variety has the needed functionality and will best depict the data at hand. Two of the most common chart types are pie and column. When depicting parts of a whole (one series), pie may be a good choice. When depicting more than one series, a column chart may be a good choice.

Activity: Creating a Pie Chart

1. Move to a blank sheet and type the following data in to depict the categories of sales for a fruit stand business:

   In cell A1: **Apples**

   In cell B1: **Oranges**

   In cell C1: **Grapes**

2. Enter the following values to depict percentages of total sales by category:

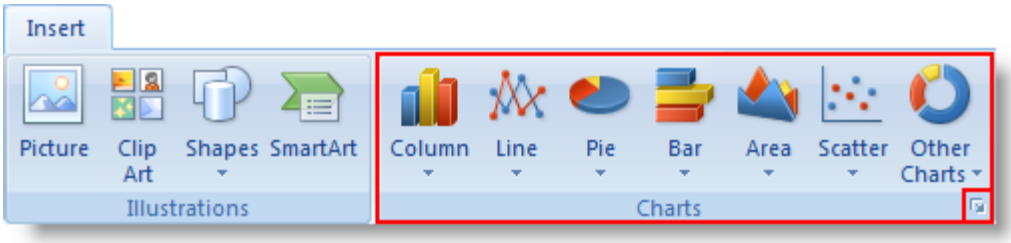
   In cell A2: **30**

   In cell B2: **45**

   In cell C2: **25**

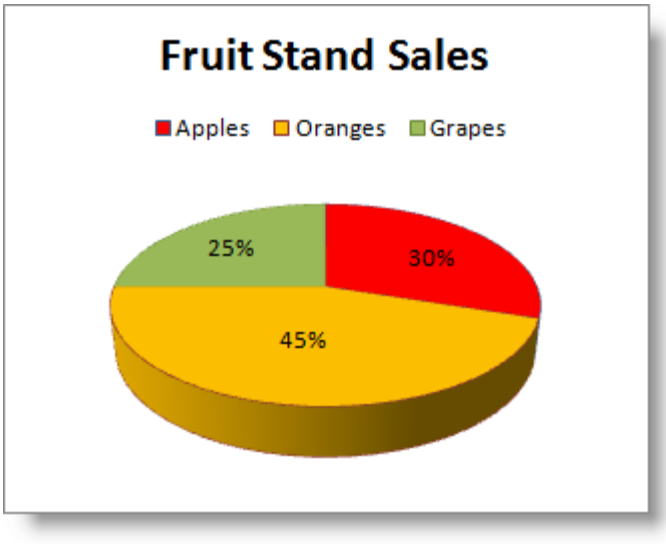
	A	B	C
1	Apples	Oranges	Grapes
2	30	45	25

3. Select the range of cells A1:C2



4. Click the drop-down for **Insert ribbon > Chart group > Pie**
5. Select an appropriate pie chart from the examples
6. With the chart selected, go to the Chart Tools / Design Ribbon and mouse-over to select **Layout 2** from the Chart Layouts to display percentages and a chart title
7. Double click the “Chart Title” area and type: **Fruit Stand Sales**

   Note that the wording on the chart will be replaced when you press **Enter**
8. For added impact, select a different style from the Chart Styles group.
9. Next, make the pie slices similar in color to the fruits they represent. Slowly, click two times on the first slice you wish to change the color of (without clicking the labels).
10. Right click the selected slice and click **Format Data Point**
11. Select **Fill**, **Solid fill**, and click the paint bucket to choose an appropriate color.
12. Individually click to select and color the other two slices.
13. If desired, the percentages can be selected and have their appearance modified in the Home ribbon Font group.
14. To give your chart its own sheet, select the chart, go to **Chart Tools / Design ribbon** and click **Move Chart** in the Location section.



15. Select **New sheet** and call it **Fruit Pie**

Activity: Creating a Column Chart

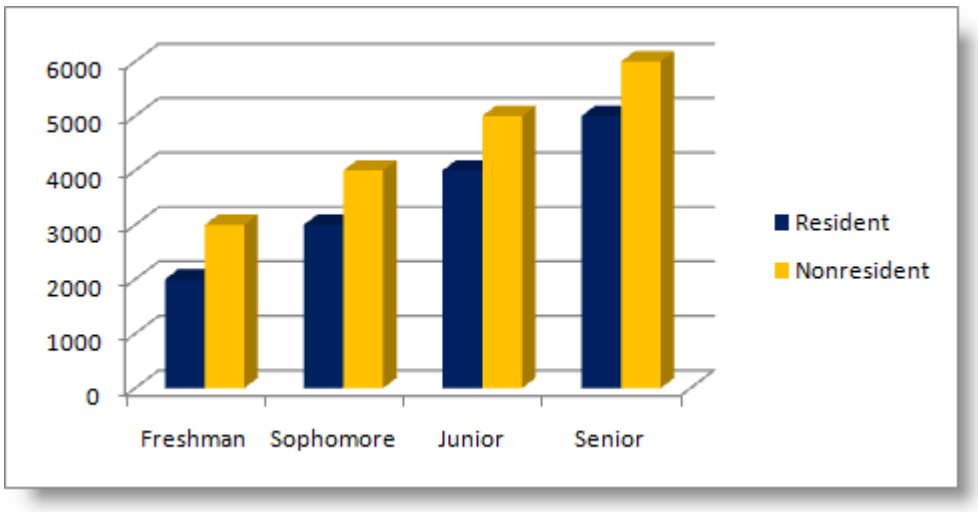
While pie charts are good at depicting things that are parts of a whole, there are times when a single pie cannot depict all of the desired information. For example, if we wanted to display how many WVU students have in-state status based on class rank of freshman, sophomore, junior, and senior, a single pie chart could do this as it is showing which ranks have which portions of all in-state students. However, if we wanted to do that and also depict the same information for out-of-state students, a second pie chart would be needed as this is a separate series. For this purpose a chart such as a column type would be more effective as it can display multiple series.

Enter the following data on a fresh worksheet:

	A	B	C
1		Resident	Nonresident
2	Freshman	2000	3000
3	Sophmore	3000	4000
4	Junior	4000	5000
5	Senior	5000	6000
6			

1. Select the range **A1:C5**
2. Go to the **Insert** ribbon
3. Select the **Column** drop down in the Charts group
4. Choose the **3-D Clustered Column** option
   Note: A mouse-over will reveal names

The resulting chart can be tweaked similarly to the way the pie chart was in the previous example. The resulting chart should appear as shown:



Charts can also be created from ranges of cells that are not directly connected. To create a chart from non-adjacent cells, select the first portion of the desired range, then hold down the keyboard **Ctrl** key and select the needed additional cells.

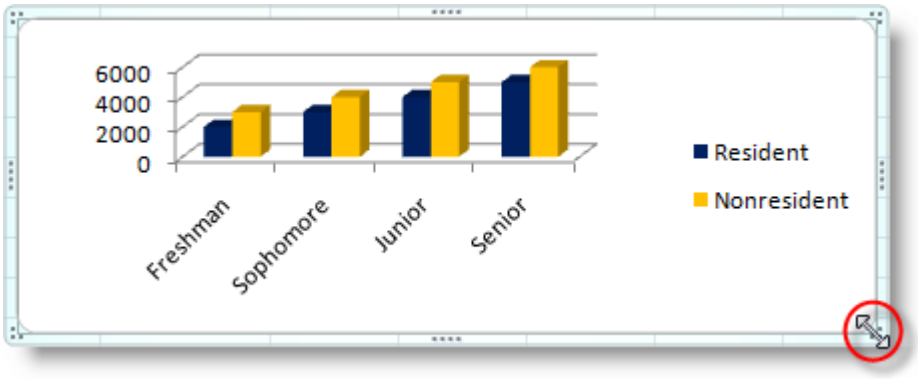
Data Arrangement

The following data arrangement is appropriate for most charts you will make. The data range consists of four regions: the top left cell, the top row, the first column, and the rest of the range. The top left cell is often kept blank; this will tell Excel that the first row and the first column are being used as labels. The top row of the data range is used for the names of the series. The first column of the range contains the category labels for all of the series in the chart. Finally, the columns in the rest of the data range contain the Y values for each of the series, corresponding to the vertical heights of the columns.

This arrangement assumes you are plotting the series by columns. If you are plotting by rows, you still keep the top left cell blank, the first column contains the series names, and the first row contains the X data.

Resizing

1. Click to select the chart.
2. Move your mouse over one of the selection handles as shown
3. Once the cursor changes into a double-headed arrow click and drag until the chart is the size that you require.



Moving

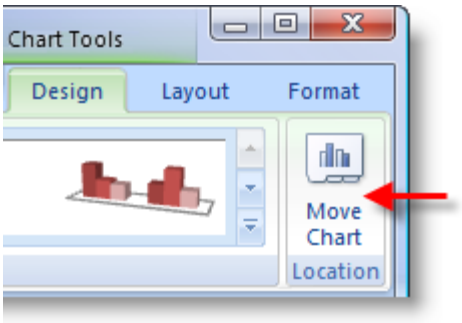
Charts can be moved within worksheets, or moved to their own sheets.

To move an existing chart within a worksheet:

1. Mouse over an area of blank space and you should see a 4-headed arrow.
2. Click and drag with this arrow to move the chart to the desired location.

To move an existing chart to a sheet:

1. Click to select the chart
2. Select the **Design** ribbon under chart tools
3. Click the **Move Chart** option
4. Check the **New Sheet** option on the resulting screen
5. Provide a name for the sheet



A chart on a different sheet than the data it is based upon will visually change when the source data changes.

Editing

To spare you recreating a chart when changes are desired, Excel includes functionality to edit existing charts. Some of the options are generalized to most chart types and others are more specific depending on the attributes of a given type. Right clicking various chart elements will generally reveal a dialog allowing options to be selected.

You can experiment with the different controls (in conjunction with the Undo command) to learn more about the options that are available.

Change Chart Type

This command displays the Change Chart Type menu and allows you to select the type of chart (bar, line, pie, scatter, radar, bubble, etc.). You can use this dialog to change the chart's type or sub-type using either standard or custom chart types.

Select Data

This dialog box is used to change the **Data Range** and/or the **Series**. You can also change whether you are charting by rows or columns.

Other Attributes

While a chart is selected, numerous options are available under the Design, Layout, and Format ribbons that appear under the Chart Tools area. While some are self-explanatory, or can be looked up in Excel help, some of these options are defined in the table below:

Ribbon / Group	Features and Controls
Design / Type	Allows selecting a different type of chart from a comprehensive list
Design / Chart Layouts	Formats chart fields for various positioning of titles and legends
Design / Chart Styles	Allows selection from various color scheme options
Layout / Labels	Allows for adding, adjusting, and positioning various labeling elements
Layout / Axes	Allows for manipulating the way axes are displayed and control of gridlines
Format / Shape Styles	Controls appearance aspects of chart
Format / WordArt Styles	Controls appearance of fonts

Trendlines

In addition to making it easy to depict information graphically, Excel has tools for identifying trends to predict future unknown values based on existing data. While the Advanced Excel workshop goes into detail about using this technique, let's try a basic example to get a taste of what it is all about.

Activity: Adding & Extending a Simple Trendline

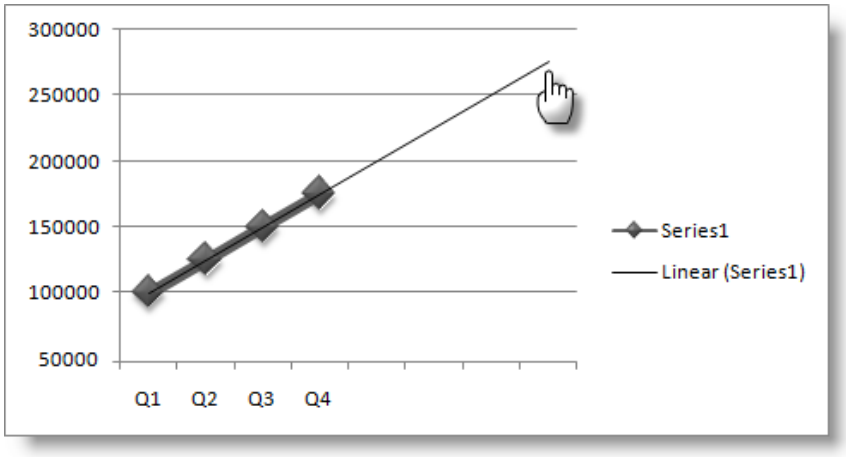
Let's pretend that we have a business and we want to try to forecast future sales based on previous sales data. We will enter revenues for four quarters of a previous year into a line chart, add a trendline to model the existing data accurately, and then extend that line forward to get an idea of what future quarters may look like if surrounding factors remain the same.

1. On an empty sheet, enter the following to simulate revenues from last year:

	A	B	C	D
1	Q1	Q2	Q3	Q4
2	100000	125000	150000	175000

2. Select the range **A1:D2**
3. On the Insert ribbon, select **Line** and choose the **Line with markers** option
   Notice that the X axis shows the number of the quarter, and the Y-axis the revenues
4. Right click one of the points and select **Add Trendline**
5. Verify the **Linear** option is selected
6. In the Forecast area, set **Forward** to **4.0** periods to reflect four quarters into the future
7. Click the **Close** button

The line shown extends out four periods and the estimated value aligns to roughly 275,000 for the fourth quarter of the following year.

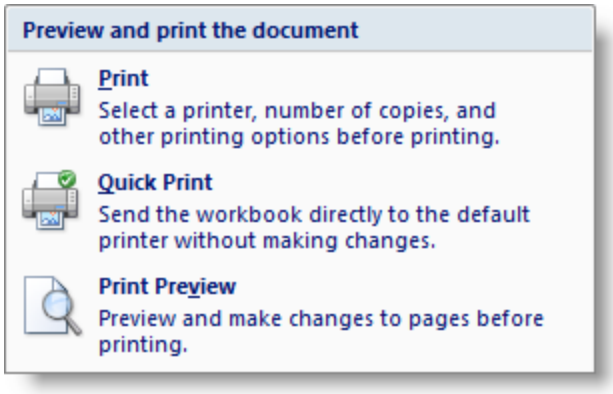


Printing a File

There are a number of ways to optimize printing in Excel. It is advisable to preview before printing to make sure the intended results will be obtained. It is possible to print all sheets in a workbook, individual sheets, or portions of sheets. Other options can also be selected to allow scaling the font size to be able to fit more information per page.

Clicking the Office button and highlighting **Print** will reveal three options: **Print**, **Quick Print**, and **Print Preview**.

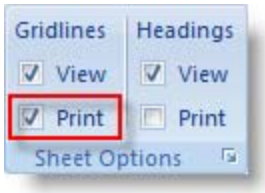
The **Print** option can also be accessed directly by clicking the main **Print** button under the Office button. Here one can specify to print the active (currently selected) worksheet, the entire workbook, or an area that was selected prior to clicking **Print**.



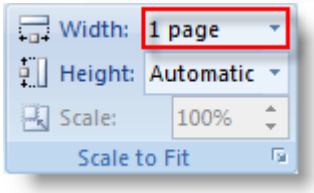
The **Quick Print** option sends the entire workbook directly to the computer's default printer. **Print Preview** can be used to see what the output of the print operation will look like.

Specifying additional attributes

Beyond the basic print operations, it is possible to tweak things such as adding the gridlines of the cells to the printed output. This particular option can be found under the Page Layout Ribbon in the Sheet Options group.



To force Excel not to exceed the width of one printed page, the Width option can be set to "1 Page" in the Scale to Fit Group of the Page Layout ribbon. In some cases this prevents some of the higher lettered columns from being orphaned onto separate pages.



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