



# Excel 1

## Module 1 – Excel Basics

## Course Overview

Using step-by-step instructions, this seven-session course introduces the basic features of Microsoft Excel, the fully featured spreadsheet program included in Microsoft Office. The first few lessons deal with navigating around the worksheet, entering and editing data, and formatting for visual appeal. Upon completion of the course you should feel comfortable using simple spreadsheets designed and created by others.

## List of Modules

1. Basics
2. Editing Worksheets
3. Format Cells
4. Formulas and Functions
5. Charts & Autofill
6. Data Lists
7. Putting it all Together

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# 1. Excel Basics

In this module we will be looking at the components of Microsoft Excel and how to get around within the Excel 2010 working environment.

Module Objectives:

- Determine when to use a spreadsheet.
- Open, modify, create and save Microsoft Excel spreadsheets.
- Enter data, select cells and modify the look of information within Excel.

**Follow Me**

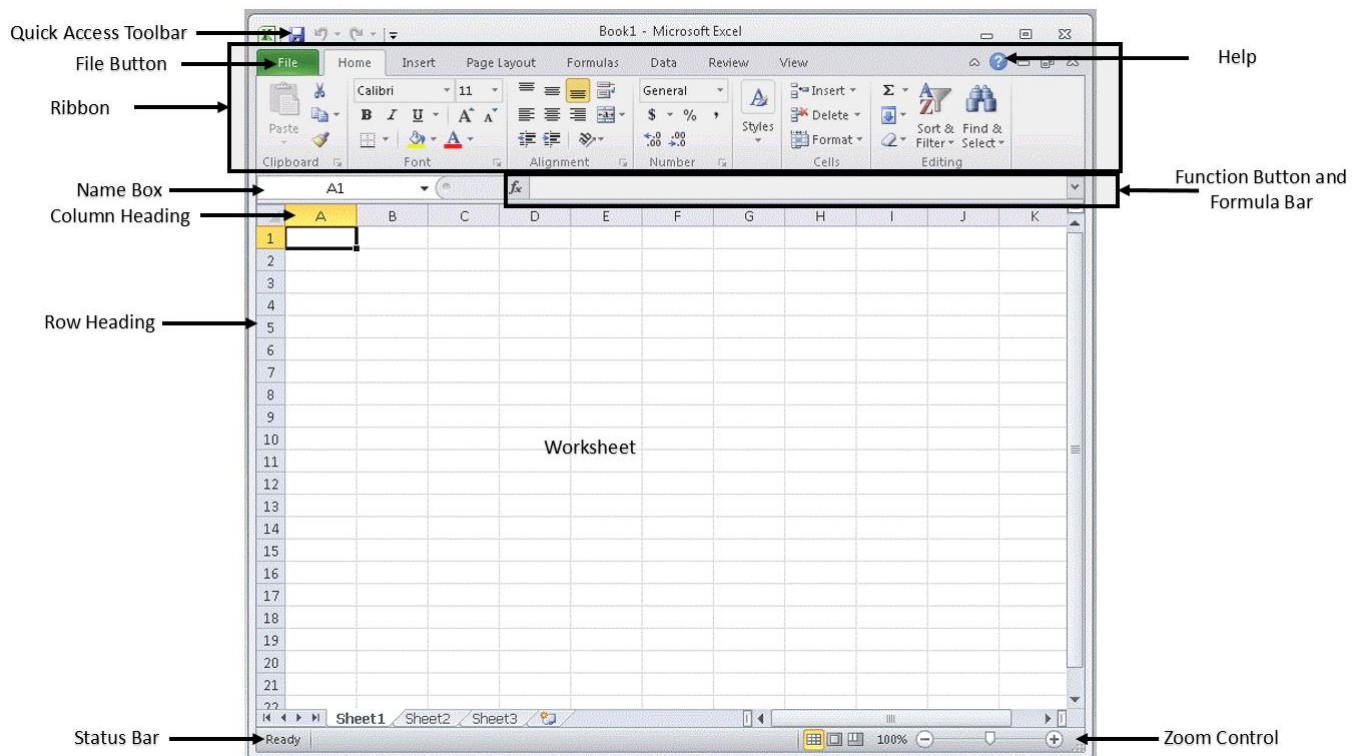
## Open Microsoft Office Excel 2010

*There is more than one way to open Excel, in this example we will use the start menu to search for it.*

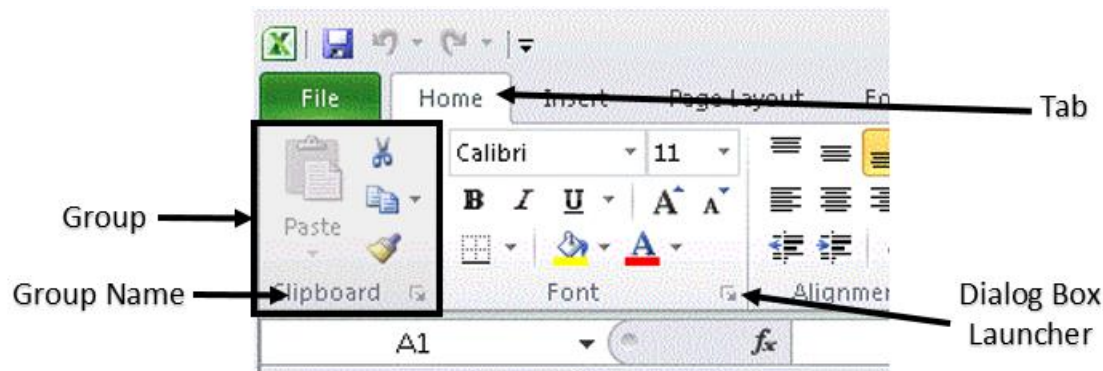
1. Click the start button
2. Type **Excel**
3. Click Microsoft Office Excel

## 1.1. Parts of Excel

The Microsoft Excel worksheet window consists of many parts. Below is a picture of the worksheet window and all of its component parts. The more commonly used areas are highlighted.



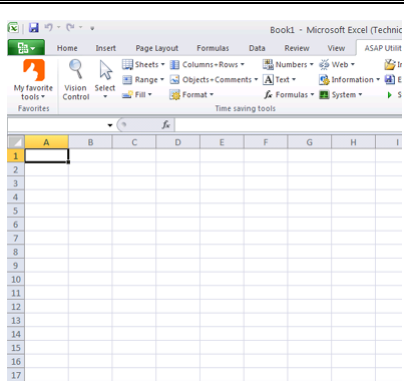
- **File Button** – Which contains menus as well as Excel options
- **Quick Access Tool Bar** – Hold common shortcuts, can be customized
- **Ribbon** – contains all the spreadsheet commands
- **Formula Bar** – where changes are made to cell contents
- **Name Box** – Shows the cell reference
- **Column & Row Headings** – the way to select/resize entire rows or entire columns. Rows are numbered (1,2,3, ...) and Columns are letters (A, B, C, ...)
- **Worksheet** – current page of spreadsheet
- **Help** – Microsoft help, available on and offline
- **Status Bar** – provides information on the current spreadsheet
- **Zoom Control** – changes the size of the spreadsheet on the screen



- **Tabs** – help organize items in the ribbon (Home, Insert, Page Layout, etc.)
- **Groups** – help organize items within a tab (Clipboard, Font, Alignment)
- **Dialog Box Launcher** – Opens new windows with additional options found in the bottom right corner of some groups.

## 1.2. Types of Spreadsheets

A spreadsheet is a collection of rows and columns. The columns are lettered A, B, C, etc., ending with XFD. The rows are numbered 1 through 1,048,576.

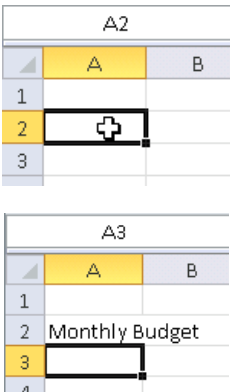
Vocabulary	Spreadsheet	
	Noun	
	An electronic document in which data in arranged in the rows and columns of a grid and can be manipulated and used in calculations.	
	Also called Worksheet in Excel.	

**Lists** - Like a columnar pad, you can create phone lists, address lists, grocery lists and the lists could go on. Typically these lists would not include any formulas. Some people find creating lists or tables in a worksheet to be easier than creating the same lists in a word processing program.

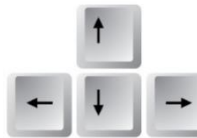

**Spreadsheets** – The real power of a spreadsheet is its ability to include formulas which automatically adjust as new numbers are entered. A formula can be as simple as  $2 + 2$  or as complex as calculating the internal rate of return on an investment. In later lessons you will explore formulas and functions and how to use them.

### 1.3. Moving around Excel

There are two general ways to move around in Excel. The first is with the mouse, let's try an example.

<b>Follow Me</b>	<b>Enter data into a cell.</b>	
	<ol style="list-style-type: none"> <li>1. Move the mouse pointer over cell A2.</li> <li>2. Click to select. (A thicker black border will appear around the selected cell)</li> <li>3. Type <b>Monthly Budget</b></li> <li>4. Hit Enter button, this enters or finalizes the text entered.</li> </ol>	

The second way is to use the keyboard to move. Below is a list of keys that can be used to move around Excel. Reminder, when you see two keys mentioned the first needs to be held while the second key is pressed. (Example: Shift + Tab, this means hold shift key while pressing the Tab key)

Keys	Excel Action	
Arrows	Selects the cell above, below, left, or right of the currently selected cell.	<p>The arrows can be below or to the right of the enter key and in the number pad of some keyboards.</p> 
Tab	Selects cell to the right of the currently selected cell.	
Enter	Selects cell below the current cell.	
Shift + Tab	Selects cell to the left of the current cell.	

Shift + Enter	Select the cell above the current cell.	Hold the shift key then tap the Enter or Tab key.  Remember if you are editing in a cell you must first hit enter to confirm the edit then hit enter again to move.
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Let's use the keyboard to enter in more data into the example.

<b>Follow Me</b>	<b>Enter more data.</b>	
	1. Using the arrow keys, select B2.	
	2. Type <b>Expected</b>	
	3. Instead of hitting the Enter button, use the Tab button to confirm the text and move to the right.	
	4. Type <b>Actual</b>	
	5. Hit Enter button to confirm the text entered.	

In the example, you may notice that **Monthly Budget** can no longer be seen. This is okay, the text or information is still in the cell. Later we will show you how to change the column width to see all the information.

## 1.4. Data Types

The intersection of a row and column is called a cell. Every cell in the worksheet has an address created by combining the column letter with the row number.

<b>Vocabulary</b>	<b>Cell</b>	
	<i>Noun</i>	
	<p>A cell is a specific location within a spreadsheet and is defined by the intersection of a row and column.</p> <p>A box formed by the intersection of a row and column in a worksheet or a table, in which you enter information.</p>	

A cell in a worksheet can contain different types of data: text, numbers, functions, and formulas. Excel behaves differently depending on what type of data is entered, this can be changed.

### 1.4.1. Text

In the **Follow Me** section above the data entered into the cell was text. We will go through a few more examples to practice.

<b>Follow Me</b>	<b>Enter more text.</b>	
	1. Select A3	
	2. Type <b>Rent</b>	
	3. Hit Enter button	
	4. Select A4	
	5. Type <b>Grocery</b>	
	6. Hit Enter button	
	7. Enter <b>Phone</b> into A5.	

### 1.4.2. Numbers

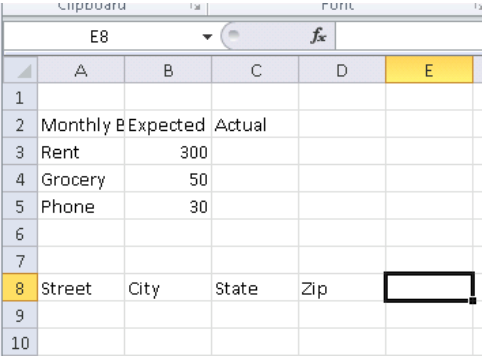
So far all the data entered into the worksheet has been text. Let's start with some basic numbers.

<b>Follow Me</b>	<b>Enter Numbers.</b>	
	1. Select B3	
	2. Type a number such as <b>300</b>	
	3. Hit Enter button	
	4. Enter a number, such as <b>50</b> into B4.	
	5. Enter a number, such as <b>30</b> into B5.	

Excel will often format numbers for us. We know that the numbers we entered in B3, B4, and B5 are dollar amounts. This means there should be two decimal places shown or two numbers after the period (Example 300.00 or 50.00). If you try and enter 300.00 into B3 it will be changed back to 300. This is because of formatting. We will go over the specifics of how to change this a little later.


<b>Follow Me</b>	<b>Try adding 300.00</b>	
	1. Select B3	
	2. Type <b>300.00</b>	
	3. Hit Enter button	
	B3 should change back to show 300.	

Sometimes you will need to make Excel treat a number as text. While this is much less common than working with decimals, it is still important. Let's enter a quick example.

<b>Follow Me</b>	<b>Add addresses to the current document.</b>				
	<ol style="list-style-type: none"> <li>1. Select A8</li> <li>2. Type <b>Street</b></li> <li>3. Use the Tab key to quick move across the sheet.</li> <li>4. Enter <b>City</b>, <b>State</b>, and <b>Zip</b> as shown.</li> </ol>				
					

In row 9 we will add the Trenton Free Public Library address:

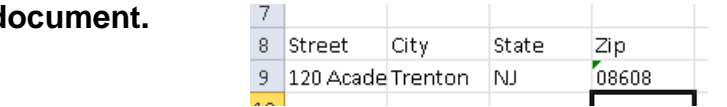
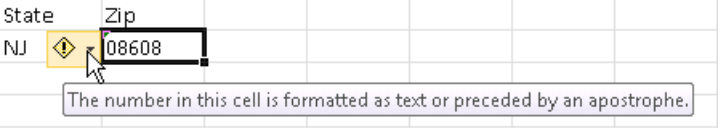
Trenton Free Public Library  
120 Academy St.  
Trenton, NJ 08608

<b>Follow Me</b>	<b>Add addresses to the current document cont.</b>				
	<ol style="list-style-type: none"> <li>5. Select A9</li> <li>6. Type <b>120 Academy St.</b></li> <li>7. Use the Tab key to move to B9</li> <li>8. Type <b>Trenton</b></li> <li>9. Hit Tab.</li> <li>10. Type <b>NJ</b>, and hit Tab.</li> <li>11. In D9, type <b>08608</b></li> <li>12. Hit Tab or Enter to confirm.</li> </ol>				
					

Notice in our example the zip code is right justified, or aligned to the right in the cell, while the other text is to the left. This is an easy way to see if the data entered is being treated as a number or text by default.

Zip codes and Social Security Numbers can sometimes begin with zero. In both of these cases it is important to include those preceding zeros. If the data will not be used in a formula or calculation, as in this case, the fastest way is to tell Excel to treat the data as text.

To enter a number as text simply precede the number with a single quote or apostrophe.

<b>Follow Me</b>	<b>Add addresses to the current document.</b>				
	<ol style="list-style-type: none"> <li>1. Select D9</li> <li>2. Type <b>'08608</b></li> <li>3. Use the Tab or Enter key to confirm.</li> <li>4. Use the mouse to select D9. When the ! appears more information is shown when hovering over the symbol.</li> </ol>				
					
					



### 1.4.3. Formulas

Formulas will always begin with the equals sign, =, and can be a simple or complex equation. Let's return to our budget example.

<b>Follow Me</b>	<b>Enter a Formula to total the budget.</b> 1. Enter <b>Total</b> into cell A6. 2. Select B6. 3. Type the following formula <b>=300+50+30</b> 4. Hit Enter button	B6		
		A	B	C
		1		
		2	Monthly Expected	Actual
		3	Rent	300
		4	Grocery	50
		5	Phone	30
		6	Total	380
7				
8	Street	City	State	

You should see the answer, 380, displayed in the cell. Excel will show the answer in the cell. To see the information actually entered in a cell select that cell and review the information in the formula bar.

<b>Follow Me</b>	<b>Check the Formula Bar</b> 1. Select B6. 2. Review the Formula Bar	B6					fx =300+50+30				
		A	B	C	D	E					
		1									
		2	Monthly Expected	Actual							
		3	Rent	300							
		4	Grocery	50							
		5	Phone	30							
		6	Total	380							
7											

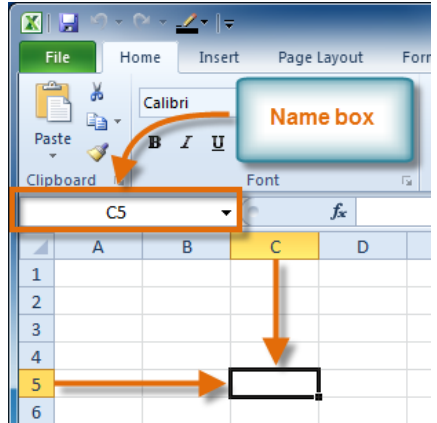
Notice how the formula bar still shows the formula entered, =300+50+30. This is the actual data entered, in the worksheet below the answer is displayed.

### 1.4.4. Functions

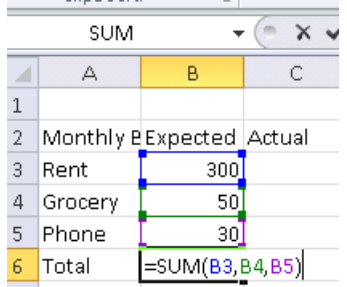
Functions also begin with the equals sign. Rather than entering numbers these use built in formulas by using short words and entering in parameters separated by commas. In our example we will use **SUM** this function allows for all given numbers to be added together.

<b>Follow Me</b>	<b>Enter a Function</b> In this example we will use the SUM function which will add numbers. 1. Select B6. 2. Type <b>=SUM(300,50,30)</b> 3. Hit Enter to confirm, notice as you type Excel will offer suggestions and help.	B6						fx =SUM(300,50,30)					
		A	B	C	D	E	F						
		1											
		2	Monthly Expected	Actual									
		3	Rent	300									
		4	Grocery	50									
		5	Phone	30									
		6	Total	380									
7													

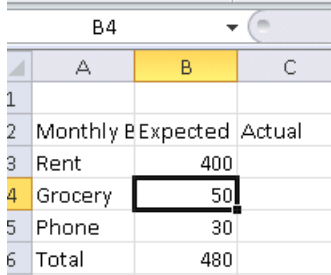
Each function will need certain things for each parameter, for example SUM needs numbers. If anything other than a number is entered an error will occur.

<b>Vocabulary</b>	<b>Cell Reference</b>	
	<p><i>Noun</i></p> <p>Is the intersection of a row and column, used to describe the location of a cell within a spreadsheet.</p>	

A cell reference can be entered into a function or formula rather than typing each number. When a cell reference is used in a function or formula, Excel will color code the cell and cell reference.

<b>Follow Me</b>	<p><b>Enter a Cell Reference into B6</b></p> <ol style="list-style-type: none"> <li>1. Select B6</li> <li>2. Type <b>=SUM(B3,B4,B5)</b></li> <li>3. Hit Enter to confirm, you should still see 380 displayed in B6.</li> </ol>	

The benefit of using a cell reference is that functions and formulas will not need to change when your data does.

<b>Follow Me</b>	<p><b>Update Data</b></p> <ol style="list-style-type: none"> <li>1. Select B3</li> <li>2. Type <b>400</b></li> <li>3. Hit Enter to confirm.</li> </ol>	

Both B3 and B6 will update once you hit enter. The new total, 480, appears in B6. Throughout the rest of the course, we will continue to work with functions and formulas.

Special Note: An Excel worksheet is a single spreadsheet that contains cells organized by rows and columns. A worksheet begins with row number one and column A. Each cell can contain a number, text or formula. A cell can also reference another cell in the same worksheet, the same workbook or a different workbook.

Vocabulary	<b>Worksheet</b>
	<p><i>Noun</i></p> <p>An Excel worksheet is a single spreadsheet that contains cells organized by rows and columns.</p>

Remember a spreadsheet is a term to describe a type of electronic document organized in rows and columns.

Vocabulary	<b>Workbook</b>
	<p><i>Noun</i></p> <p>An Excel workbook is an excel file made up of one or more worksheets.</p>

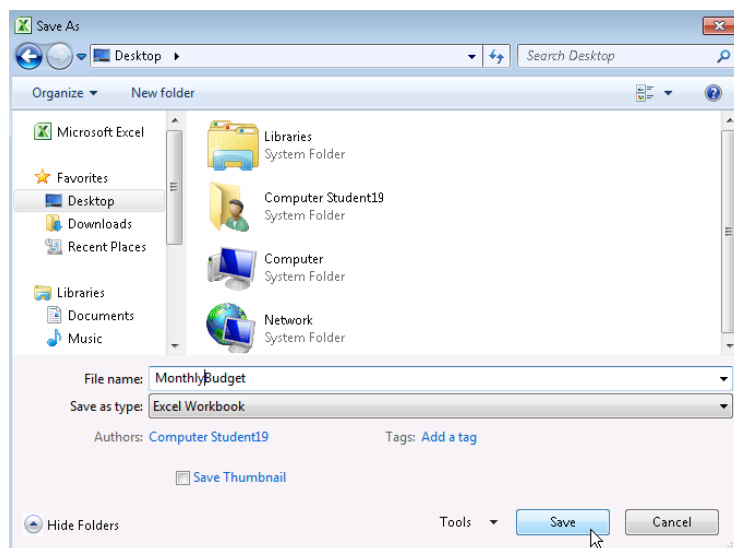
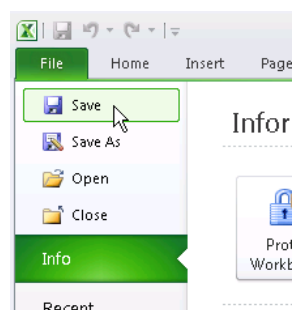
## 2. Creating & Saving Workbooks

If you start Microsoft Excel by selecting it from among the programs offered in the Start Menu, as we did earlier in this lesson, then Excel will create a blank workbook named Book 1.

### 2.1. Saving

Saving your work as you go is important, there are some data recovery features for Microsoft Office but these often do not save frequently enough. Let's begin by saving the Budget worksheet from before.

<p><b>Follow Me</b></p>	<p><b>Save current Workbook</b></p> <ol style="list-style-type: none"> <li>1. Open the File Menu</li> <li>2. Click Save</li> </ol> <p><i>The first time you save and any time you select Save As the following screen will appear. This will ask you for two very important pieces of information:</i></p> <ul style="list-style-type: none"> <li>• Where do you want to save it?</li> <li>• What do you want to call it?</li> </ul> <ol style="list-style-type: none"> <li>3. Navigate to the Desktop. This is done by selecting <b>Desktop</b> from the left side, you may need to scroll to find it. If you have selected it correctly it will appear at the top in the address bar.</li> <li>4. Select the File name and change it from Book1 to <b>MonthlyBudget</b>.</li> <li>5. Click Save</li> </ol>
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The 'Save as type:' should be Excel Workbook as shown, the other options are used when sending spreadsheets to others who use a different program, either a free version or older version.

To save any new updates to this existing document, you can now just select **save** from the file menu. If you wanted to save a new version with a different name or in a different location select **Save As** from the file menu.

## 2.2. Creating

There are two ways to create a new worksheet in Excel. The first is to open Excel as we did before. The second way can be done while already in Excel.

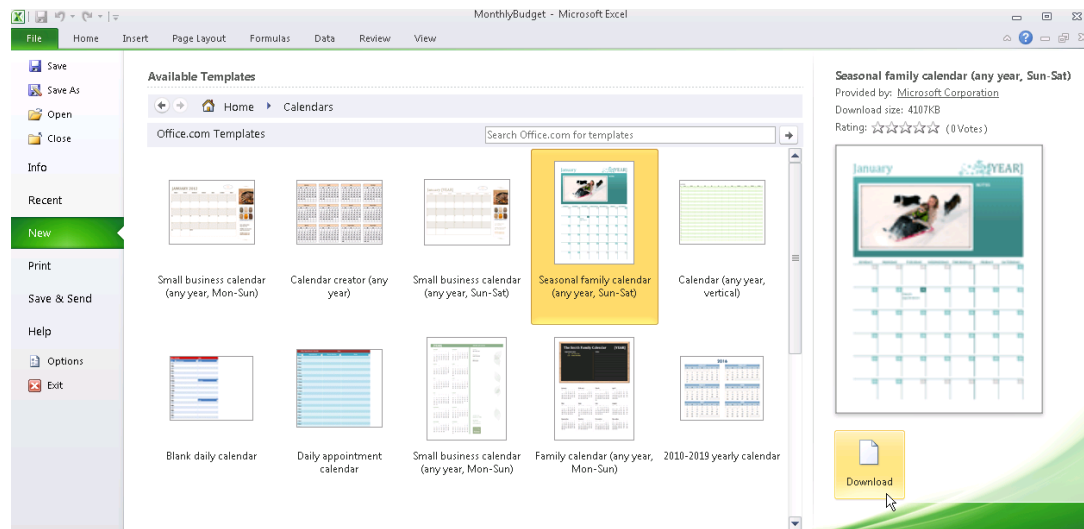
### Follow Me

#### Create new Workbook from Template

1. Open the File menu and click New from the left side.

*In this screen the middle section will show available templates. On the Right is a preview showing the currently selected template. Below the preview is the create button.*

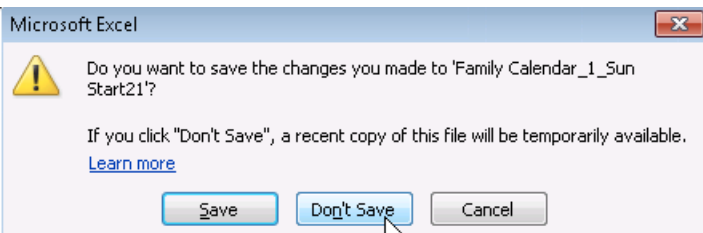
2. Click on Calendars
3. More options will appear, choose one you like. It should appear in the preview pane.
4. The create button may be replaced by download. Click Download or Create.



Templates are pre-formatted workbooks, some serving very specific purposes such as invoicing or a calendar as in our example.

## 2.3. Exiting

When exiting out of an Excel workbook you may want to save your changes or you may not. We will go through both examples.


<b>Follow Me</b>	<p><b>Exit without Saving - Template</b></p> <ol style="list-style-type: none"> <li>1. Ensure you have the template you selected still open.</li> <li>2. Click the X in the very top right corner.</li> </ol> <p><i>Because you have not saved the template, you will be asked if you want to save the changes before Excel will exit.</i></p> <ul style="list-style-type: none"> <li>• <b>Save</b> – this will walk you through the process of saving the document.</li> <li>• <b>Don't Save</b> – your changes will <u>not</u> be saved.</li> <li>• <b>Cancel</b> – this will stop you from exiting Excel and will <u>not</u> save.</li> </ul> <ol style="list-style-type: none"> <li>3. Click <b>Don't Save</b></li> </ol> 
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We have not made any changes to our Monthly Budget worksheet so exiting should not ask us to save.

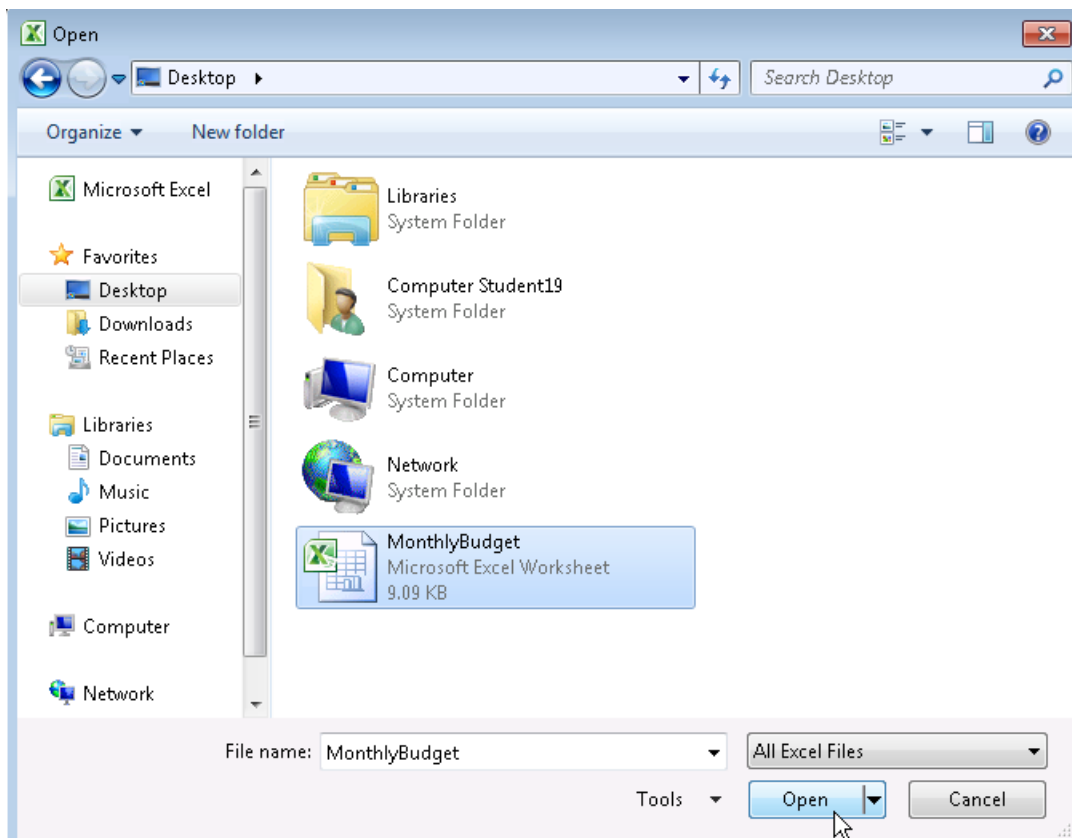
<b>Follow Me</b>	<p><b>Exit with Saving – Monthly Budget</b></p> <ol style="list-style-type: none"> <li>1. The Monthly Budget worksheet should still be open.</li> <li>2. Click the X in the very top right corner to exit.</li> <li>3. If you are asked to save, click <b>Save</b></li> </ol>
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## 2.4. Opening

There are again two ways to open an existing worksheet in Excel. In either case you will need to know where the worksheet is saved and what it is named. We will use both methods during this course.

<b>Follow Me</b>	<p><b>Open Monthly Budget</b></p> <ol style="list-style-type: none"> <li>1. All programs should be closed, you should see the desktop. If not minimize or close all programs.</li> <li>2. Double click <b>Monthly Budget</b> from the desktop.</li> </ol> 
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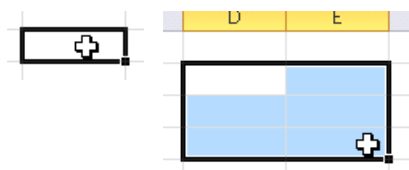

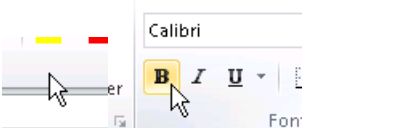
Alternatively, you can open Excel from the start menu. Then use the Open button from the File menu. This will bring up a window similar to Save As that you can use to navigate to the file. Remember, you will need to look under Desktop in this window to find the MonthlyBudget file.

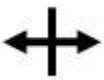
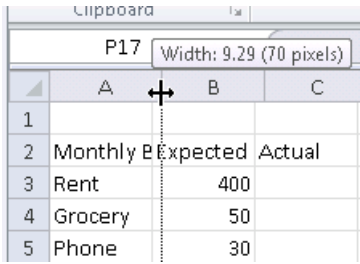

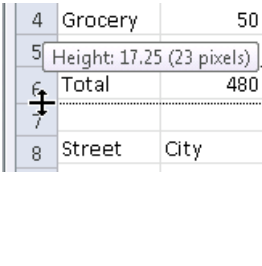

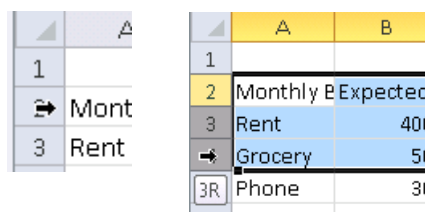

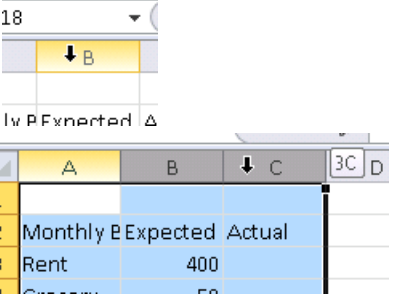

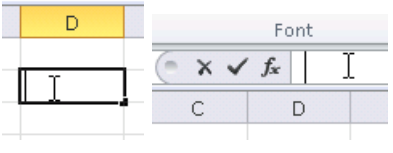

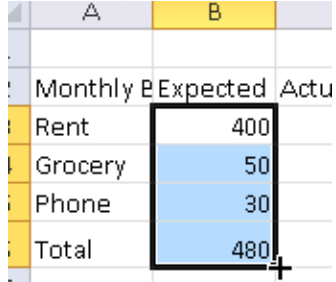


### 3. Mouse & Keyboard



The mouse pointer in the spreadsheet program takes on many different shapes depending on where the mouse pointer is within Excel. These shapes are visual clues as to what you can do at the specific position on your display screen.

#### 3.1. Excel Cursors

Cursor	Name	Description	In Action
	Cross Pointer	Used for selecting cells. A single click will select. To select a range, click and drag.	
	Arrow Pointer	Used to select items outside of worksheet, such as in the Ribbon.	

	Resizing Arrows	<p>Used to change column widths.</p> <p>Move your cursor between columns to use.</p> <p>Double clicking will auto-fit.</p> <p>Click and drag will allow you to resize manually.</p>	
	Resizing Arrows	<p>Used to change row heights</p> <p>Move your cursor between rows to use.</p> <p>Double clicking will auto-fit.</p> <p>Click and drag will allow you to resize manually.</p>	
	Row Selector	<p>Used to select entire rows.</p> <p>Move your cursor onto a row number to use.</p> <p>Single click will select entire row.</p> <p>Click and drag will select multiple rows.</p>	
	Column Selector	<p>Used to select entire columns</p> <p>Move your cursor onto a column letter to use.</p> <p>Single click will select entire column.</p> <p>Click and drag will select multiple columns.</p>	
	Cursor	<p>Used to edit cell contents in Formula Bar or the cell itself.</p> <p>Sometimes referred to as I Beam</p>	
	Fill Handle "Auto Fill"	<p>Used to copy cell contents to adjacent cells.</p> <p>To use, hover your mouse over the bottom right corner of the selected cell or cells.</p> <p>Click and drag to fill or copy contents into new cells.</p>	



	Move	<p>Used to move selected items such as cells.</p> <p>To use, hover over the dark border of the selected cell or cells. Click and drag to move the item.</p>	
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### 3.2. Special Keys

In addition to the Enter, Tab, Shift, and arrow keys mentioned previously the following are also special keys used in Excel.

Key	Function
Enter	In addition to move to the next cell, enter is used to confirm the new contents of a cell.
Esc	Escape, this key can be used to cancel out of editing a cell.
Page Up	Moves up one screen
Page Down	Moves down one screen
F7	Spell Check
F1	Help
Delete	Clears contents of entire cell or group of cells
Ctrl + A	Selects all cells in the worksheet
Shift	In addition to the notes in previous section, Shift can be used to expand a selection by holding shift and clicking. Shift can also be used in combination with arrows keys to make a selection.
Ctrl	Control can be held while clicking to select unconnected cells or ranges of cells.
Alt	Alt can be pressed or toggled on and off to allow keyboard selection of menu items.

## 4. Selection & Basic Formatting

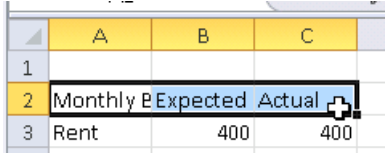
Generally many of the same formatting settings are available in Excel as in the other Microsoft Office Suite of products. The most common items appear as buttons on the Ribbon. Those that do not can typically be found through the Dialog Box Launcher. Also the same as other Microsoft products, in order to change an item it must first be selected.

**Follow Me**

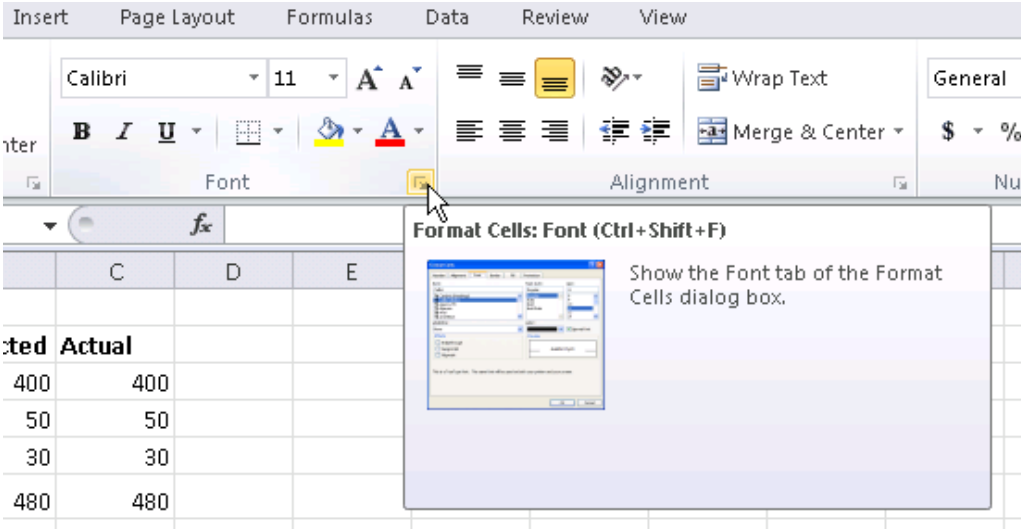
**Update Titles of Monthly Budget**

1. Select A2 through C2
2. Click on the **Bold** Button (Found in the **Home** Tab, **Font** group)

*This button, along with the italics and underline buttons, is a toggle. If a keyboard shortcut is available, it will appear while hovering over the button. Hovering over buttons will often provide details about the action.*



Any changes that would be made to the font, or the appearance of the data in a given cell, can be found in the **Font** group. Again, not all the buttons may appear so there is also a Font Dialog Box Launcher available.



Now that we have adjusted the look of our titles, it's time to resize the columns so that all the text can be seen.

**Follow Me****Widen Columns to show full title**

1. Move your cursor to hover between column A and B, this is done by moving your cursor into the Column Header.
2. Once you see the resizing arrow (see cursors above for pictures), double click.

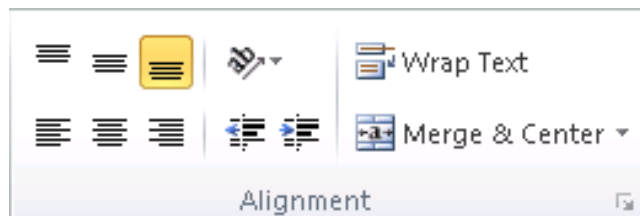
*This will auto fit the column width to the contents of the cells. You can manually change this by clicking and dragging with the resizing arrow instead.*

	A	B
1		
2	Monthly Budget	Expected
3	Rent	400

	A	B	C
	Monthly Budget	Expected	Actual
	Rent	400	400
	Grocery	50	50

In addition to changing the style of the text, you can change the way the text is arranged within the cell. These options are incorporated into the **Alignment** group, also on the Home tab.



There are more options available within the dialog box. Of particular interest is the Merge & Center option. This allows multiple cells to be combined into a single cell.

**Follow Me****Create Title for Monthly Budget**

1. Select A1 through C1
2. Click the **Merge & Center** button (*Alignment group on Home tab*).

3. In the new cell, type **Monthly Budget**

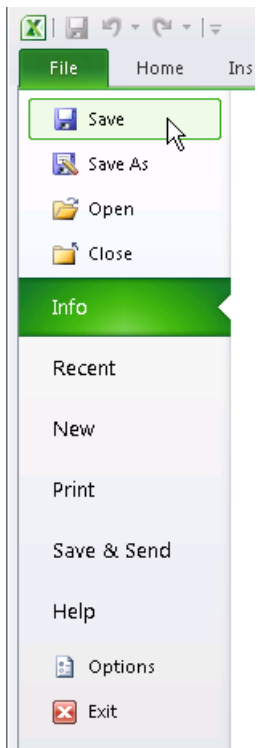
4. We can also change A2 to **Expenses**

	A	B	C
1	Monthly Budget		
2	Expenses	Expected	Actual
3	Rent	400	400
4	Grocery	50	50

To remove text or data that is no longer needed, you can select the cells and use the delete key. This will remove the contents of the cell or cells.

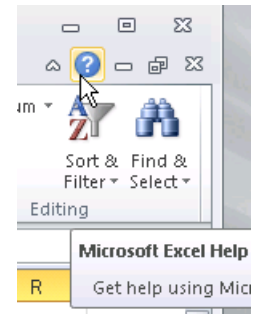
Follow Me	Delete Data					
		A	B	C	D	E
		1	Monthly Budget			
	1. Select A8 through D9	2	Expenses	Expected	Actual	
	2. Press the Delete key on your keyboard.	3	Rent	400	400	
		4	Grocery	50	50	
		5	Phone	30	30	
		6	Total	480	480	
		7				
		8				
		9				
		10				
		11				

Now that our Monthly Budget has been cleaned up, we'll go through the process of saving an existing file and exiting.

Follow Me	<h2>Save and Close Monthly Budget</h2> <ol style="list-style-type: none"><li>1. Select <b>Save</b> from the <b>File</b> menu.</li><li>2. Close Excel.</li></ol> <p><i>You can exit out of Excel from the File menu by selecting <b>Exit</b>. Another method is to click the X (Close) button in the top right corner of Excel.</i></p>	

## 5. Exercises – Now You!

The following exercise will ask you to create a new worksheet, enter data, format the worksheet, and save. In addition to referring back to this module or asking your instructor, there is help available within Excel. To access help within Excel you can use the shortcut key, F1, or click on the blue question mark in the top right corner of Excel.



1. Open Excel
2. Enter in and format your document to look like the image below.

	A	B	C	D	E	F	G
1							
2	<b>Addresses</b>						
3	<u>Name</u>	<u>Street</u>	<u>City</u>	<u>State</u>	<u>Zip</u>		
4	Betty Lue	124 State St.	New York	NY	12345		
5	John Doe	421 Main St.	New York	NY	12345		
6	John Jacob	7890 Lake St.	Chicago	IL	65432		
7							

3. Save your worksheet to the desktop, name it **Addresses**
4. Close Excel