



Spreadsheets

Notes

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Microsoft Excel 2016

Welcome to *Microsoft Excel 2016*. In this class you will learn the basics of Excel, and work on a small project using commands and calculations.

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What is Microsoft Excel?

Excel is a spreadsheet program that allows you to store, organize, and manipulate data. Data can be text, numbers, and formulas. The data is entered into cells which are organized into columns and rows. Many people use Excel to keep a budget, use charts and graphs to show data, track sales for a business, and much more.



Figure 1 - Microsoft Excel icon

Open Excel 2016 on your computer. Locate the Excel icon on the computer desktop (see Figure 1), place the pointer arrow on it, and double-click the left mouse button.

Microsoft Excel 2016 Interface

The Excel interface is where you see and use the tools in Excel on the screen. This includes the way the tools are organized and presented to you, the software user. You will learn about **The Welcome Page**, **The Ribbon**, **Quick Access Toolbar**, and **File Tab**.

The Welcome Page

When you first open Excel 2016, you will see the Welcome Page (see Figure 2). Take a moment to browse the many templates available for specific uses. Notice the Search Box near the top-center where you can search for templates for other uses.

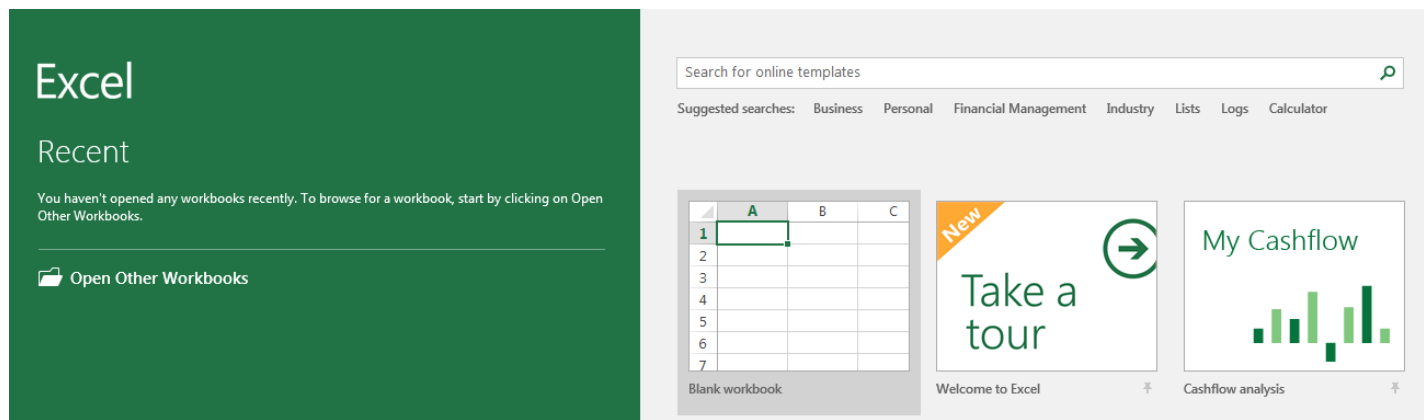


Figure 2 - Excel Welcome Page (zoomed in to upper left side)

Try it! Open a new “Blank workbook” from Welcome Page. Simply click the template with that name. You will be working in this blank workbook during the class exercise.

TIP: if you have a Microsoft account (like outlook, hotmail, or Office 365) you can log in near the upper right corner of the Welcome Page where it reads, “Sign in to get the most out of Office”. Doing this allows you to save your work to “OneDrive”, and then accessing it from any other computer with Internet connection. For example, you start a document in the library, save it to your Microsoft account, and retrieve at home or work later. This is known as “saving to the cloud,” or more formally “cloud computing”.

The Ribbon

The Ribbon is a toolbox at the top of the screen. It’s organized into three main parts (see Figure 3):

- **Tabs** – Tabs represent a general activity area. For example, the “Home” has the tools most often used, and the “Insert” tab has the tools to “put objects into” the work area.
- **Groups** – Groups show related “tools” together more specifically, like “Font” or “Alignment”.
- **Commands** – A command is one of the actual “tools”, which can be a button, expandable menu, or a box for entering information.

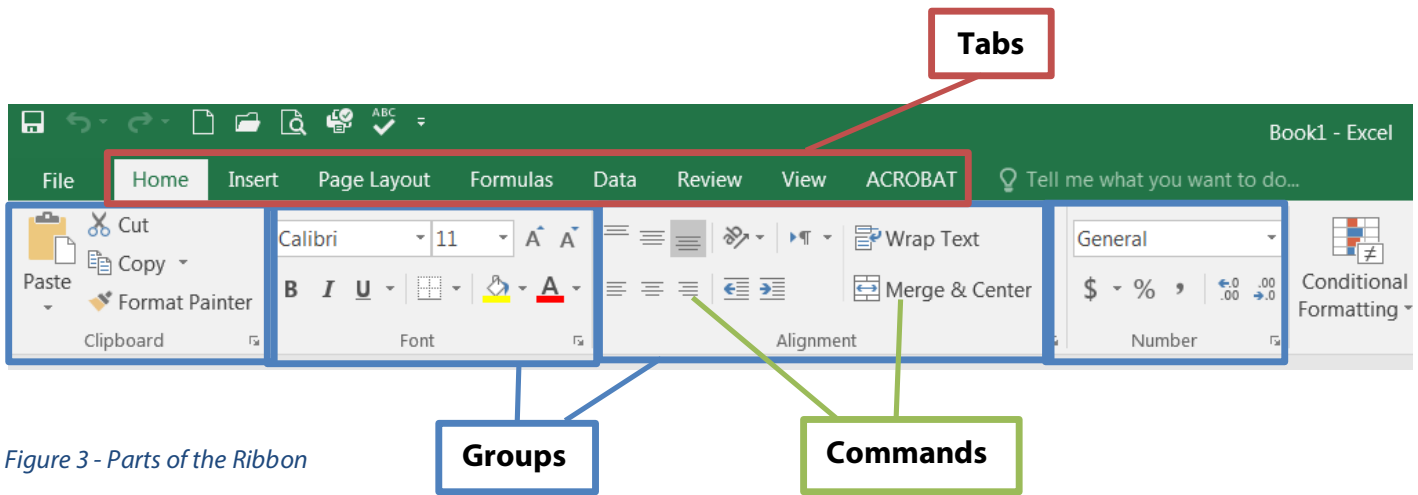


Figure 3 - Parts of the Ribbon

Try it! Click the various tabs and observe how the Groups and Commands change. Let the mouse arrow rest over a command (icon) and the name and description of that command will appear.

TIP: If you have a question about Excel, type it into the box labeled “Tell me what you want to do...”

Quick Access Toolbar

The Quick Access Toolbar is above the Tabs and **has the commands used most often** (see Figure 4).

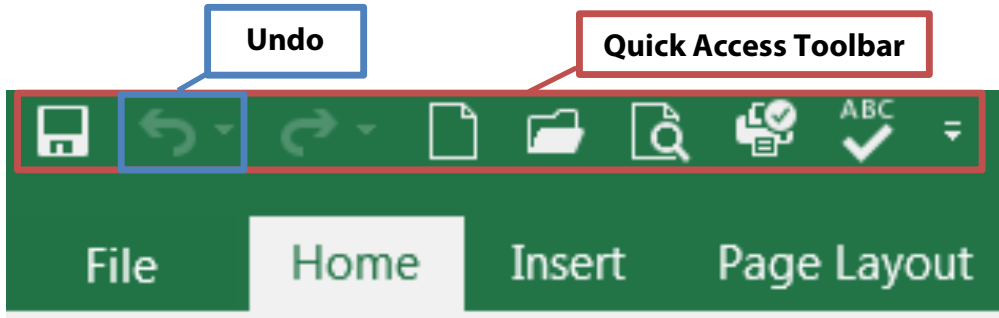


Figure 4 - Quick Access Toolbar & Undo button (zoomed in)

Try it! Click into any of the blank rectangles (cells) in the large white grid area (worksheet). Type your name, then click the “Undo” button. **The Undo command “takes back” any changes** made in the document. Use it when you want to “go back” a few steps. On that note, it is important to “save early and save often.” (see “Saving Your Work” on page 9.)

File Tab

The File Tab is where you can create a **New** document, **Open** an existing one, **Save** changes, **Save As** a different file with a different name, **Print** the current workbook, and many other options.

Try it! Click the File Tab and observe the options described. This area is called the “backstage view”. Click the “back” arrow at the top to return to the main Excel work area.

Exercise – “My Pet Store Earnings”

Let’s get to work in Excel! In this exercise, you will operate a pet store for a month and keep track of your sales for that month. First you will learn how to enter information into a cell.

Entering Data into Cells

Most of the work in Excel takes place in the rectangular boxes called “cells”. Cells make up the large white grid called the “worksheet”. Each cell has a “cell address” made up of a letter for the column, and a number for the row (see Figure 5).

Try it! Follow these steps to recreate Figure 5:

1. Click into cell **A1**
2. Type “My Pet Store Earnings”
3. Press “Enter” on the keyboard
4. Type “Type of Pet” in cell **A2**
5. Continue entering the list of pets shown in Figure 5

	A	B	C	D	E
1	My Pet Store Earnings				
2	Type of Pet				
3	Dogs				
4	Cats				
5	Fish				
6	Birds				
7	Rodents				
8	Reptiles				
9	Arachnids				
10					

Figure 5 - Worksheet area, columns, rows, and data in cells

Let’s continue creating this table by adding column labels:

1. Click into cell **B2**
2. Type “Number Sold”
3. Press the “Tab” on the keyboard
4. Type “Price” in cell **C2**
5. Press “Tab”
6. Type “Total per type”

	A	B	C	D	E
1	My Pet Store Earnings				
2	Type of Pet	Number Sold	Price	Total per type	
3	Dogs				
4	Cats				
5	Fish				
6	Birds				
7	Rodents				
8	Reptiles				
9	Arachnids				
10					

Figure 6 - Worksheet with column labels

Basic Formatting - Labels

The words you type into a cell are called “labels”. Excel has many formatting tools to make labels look better and easier to read. For example, the label “Number Sold” is too long to fit into a cell **B2**.

Try it! Select cell range **A1:E1** (click and drag from cell **A1** to **E1**). Click the “Merge and Center” command in the *Alignment Group* of the *Home Tab*. Now add a little style: click the “Good” command in the *Styles Group* of the *Home Tab*. Your worksheet should look like Figure 7.

Try it! Place the mouse pointer on the thin line between column letters “B” and “C”. Double click, and the columns will automatically adjust to fit the text in column “B”. Make the text in every column easy to read. Your worksheet should look like Figure 7. You may also click and drag to adjust the width of the column.

	A	B	C	D	E
1	My Pet Store Earnings				
2	Type of Pet	Number Sold	Price	Total per type	
3	Dogs				
4	Cats				
5	Fish				
6	Birds				
7	Rodents				
8	Reptiles				
9	Arachnids				
10					

Figure 7 - Formatting and columns adjusted

Basic Formatting - Values

The numbers you type into a cell are called “values”. Working with values in Excel will begin to show you the power of the software.

Try it! Type the values you see in columns “B” and “C” in Figure 8. Click into cell **B3**, type “27”, then press “Enter” on the keyboard. Continue until you’ve added all the values in range **B3:C9**. Note: when typing the values in column “C” (prices), do not include the dollar sign.

	A	B	C	D
1	My Pet Store Earnings			
2	Type of Pet	Number Sold	Price	Total per type
3	Dogs	27	300	
4	Cats	20	160.5	
5	Fish	33	12	
6	Birds	26	45	
7	Rodents	18	25.5	
8	Reptiles	37	99.99	
9	Arachnids	43	80	

Figure 8 - Values in cell range B3:C9

TIP: A “cell range” is a group of cells in a worksheet that you may have to select or refer to. A cell range uses the cell address of the *first* and *last* cells in the cell range, separated by a colon. For example, a cell range that included cells A1, A2, A3, A4, and A5 would be written as **A1:A5**.

Try it! Select cell range **C3:C9**. In the “Numbers” group under the “Home” tab, click the small arrow next to the dollar sign (Accounting Number Format) as seen in Figure 9. You will click “English (United States),” but browse the many options in the drop-down menu.

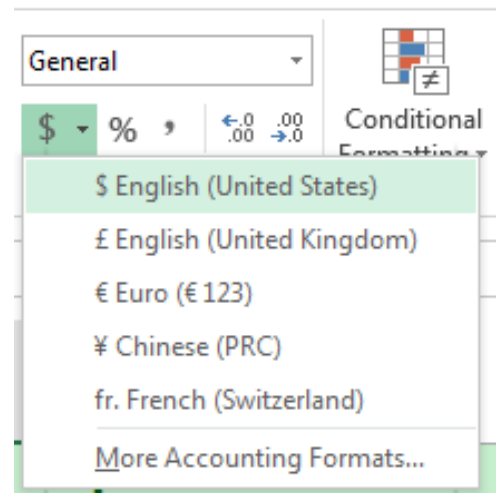


Figure 9 - "Accounting Number Format"

Calculating with Formulas

Let’s learn how to perform basic calculations in Excel, called “formulas”. For example, how much did the pet store make during this month from the sale of pet dogs?

Try it! Click into cell **D3**. Type the equal sign (=). Note: formulas *always* begin with an equal sign. Click cell **B3**. Type an asterisk (*). Note: in an Excel formula, an asterisk is used for multiplication. Click cell **C3**. Your worksheet should look like Figure 10. Press “Enter”. How much did the pet store earn from sales of pet dogs? Repeat these steps similarly for the “Cats” row. Hint: start in cell **D4**.

	A	B	C	D
1	My Pet Store Earnings			
2	Type of Pet	Number Sold	Price	Total per type
3	Dogs	27	\$300.00	=B3*C3

Figure 10 - Basic multiplication formula

Tip: When you select a cell when preparing a formula, the moving lines around the cell that look like marching ants is called “selection marquee”. Also, notice the “formula bar” above the column letters which shows the formula in the selected cell. The box in the top left of Figure 10 is the “Name box” which shows you what cell is currently selected.

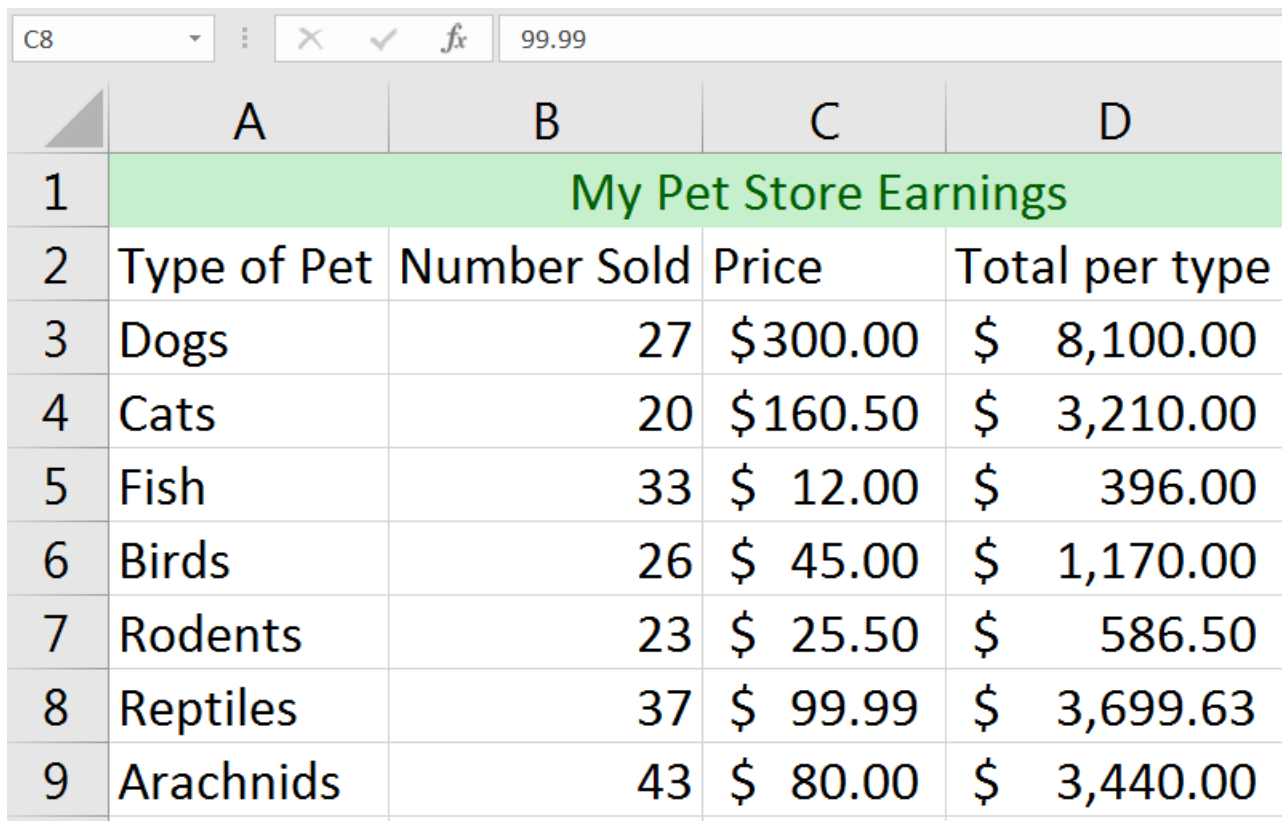
Copy a Formula with Autofill

You can speed up your work by calculating one formula and copying it to make other calculations quickly and efficiently. This is a powerful feature in Excel called “Autofill”.

Try it! Select cell range **D3:D4**. Place your mouse over the “fill handle” in the bottom right corner of the selection. The mouse pointer changes from a large white cross to a thin black cross. Click and drag the fill handle down to cell **D9**. Release the mouse button and you observe the power of Autofill.

Tip: You can see the formula used for a cell in the formula bar. If you click into cell **D5**, for example, you will see **=B5*C5** appears in the formula bar.

Try it! Let’s suppose a store clerk misplaced a few receipts for rodent sales. Five more rodents sold than reported in the worksheet, so number of rodents sold is “23” and not “18”. Make this change in cell **B7**, and press “Enter”. Notice the Total dollar amount for “rodents sold” (cell D7) adjusts automatically (see Figure 11).



	A	B	C	D
1	My Pet Store Earnings			
2	Type of Pet	Number Sold	Price	Total per type
3	Dogs	27	\$300.00	\$ 8,100.00
4	Cats	20	\$160.50	\$ 3,210.00
5	Fish	33	\$ 12.00	\$ 396.00
6	Birds	26	\$ 45.00	\$ 1,170.00
7	Rodents	23	\$ 25.50	\$ 586.50
8	Reptiles	37	\$ 99.99	\$ 3,699.63
9	Arachnids	43	\$ 80.00	\$ 3,440.00

Figure 11 - Adjusted totals in cells B7 and D7

Quick Addition with AutoSum

“AutoSum” lets you quickly add values in a cell range.

Try it! Click in cell **B10**. Then, in the “Editing” group of the “Home” tab, click the command called “AutoSum”. You should cell range **B3:B9** automatically selected and formula in cell **B10**. Press “Enter” and you will see the sum (total) of number of pets sold (see Figure 12). Note: you could also have manually written a formula that would look like this, “**=B3+B4+B5+B6+B7+B8+B9**”.

TIP: The word “SUM” you see in cell **B10** of Figure 12 is what’s called a “function”. Functions are formulas that Excel has already prepared for you to use quickly. Functions include a name (like “SUM”) which describes what it does, and a set of parentheses with the function’s “arguments” The arguments show how the function is calculating information. In this case the function is adding all the values in the cells B3 through B7.

	A	B	C
1	My Pet Store Earnings		
2	Type of Pet	Number Sold	Price
3	Dogs	27	\$300.00
4	Cats	20	\$160.50
5	Fish	33	\$ 12.00
6	Birds	26	\$ 45.00
7	Rodents	23	\$ 25.50
8	Reptiles	37	\$ 99.99
9	Arachnids	43	\$ 80.00
10		=SUM(B3:B9)	
11		SUM(number1, [number2], ...)	

Figure 12 - AutoSum command & the SUM function

Challenge: How would you get the sum (total) for column “C” and “D” without manually writing a formula or using AutoSum?

Save Your Work

To make sure you don’t lose your work on a document, you should “save early and save often.” **Try it!**

1. Click the File tab
2. Click Save As
3. Click “This PC”
4. Click “My Documents”
5. Type “My Pet Store Earnings” in the “File name” box
6. Click “Save”

TIP: On KCLS computers, files saved to “My Documents” folder are erased at the end of your session. Consider a USB drive, or OneDrive for long-term storage. If you have a Microsoft account (Outlook, Hotmail, etc.), you can also save work to your OneDrive. Learn more at bit.ly/office2016cloud.

Exercise – “Welcome to Excel”

Excel 2016 has a great new tour that walks you through many other key exercises. Let’s take the tour!

Try it! Click the “File” tab, then click “New”. Click the “Welcome to Excel” template (see Figure 13). Read the instructions and complete the exercises to learn and practice more about Excel.

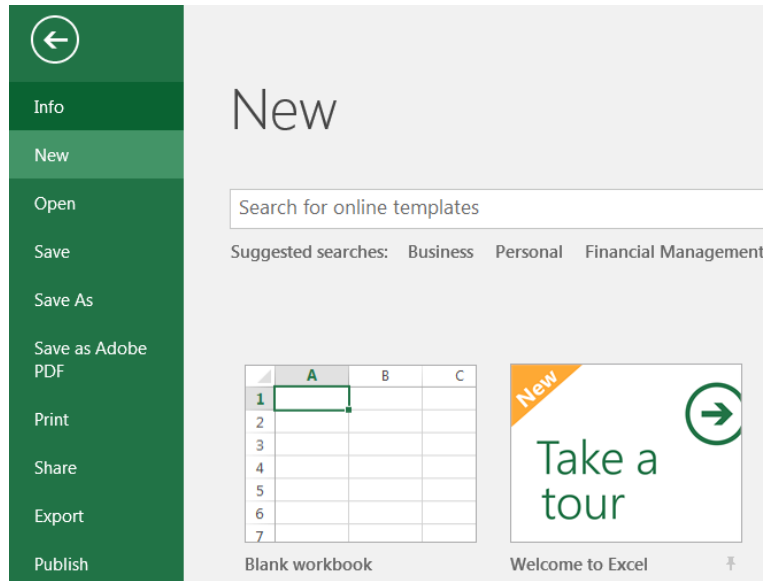


Figure 13 - Opening a new file, "Welcome to Excel"