

# Appendix C

## EXCEL BASICS AND TOP 20 EXCEL TIPS

### EXCEL BASICS

In the command area for Excel 2016, commands are displayed in the **Ribbon** in task-oriented **groups** in a series of **tabs** (Figure C.1). Clicking on the **Dialog Box Launcher** allows you to access additional commands within the groups. Clicking on the **File Tab Button** displays a drop-down menu containing a number of options, such as *open*, *save*, *send*, *recent*, and *print*. In the Quick Access Toolbar, you can customize buttons for tasks you perform frequently, including for *save*, *print preview*, and *undo move*. Note that the window size and screen resolution affect what you see in the command area of the program. Also see Chapter 9 on how to compose figures and tables.

### TOP 20 EXCEL TIPS

The following instructions apply to MS Excel 2016 for Windows (PC version). On the Mac, most commands are the same but may have to be accessed differently.

**Tip 1.** If you do not know how to perform specific functions in Excel, click on the **help button** (“Tell me what you want to do”), which looks like a light bulb on the tab band of the command area, and type in the key word or question you have. The help function of

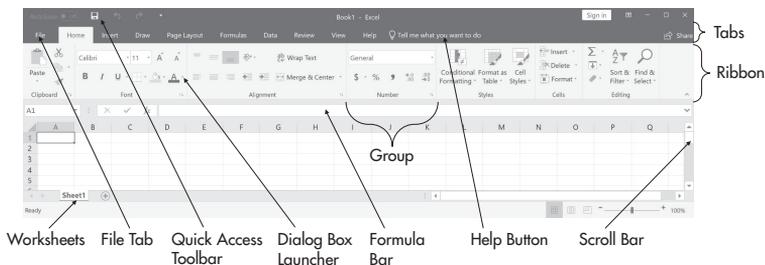


Figure C.1 Command area in Excel.

Excel will provide you with different options to narrow down your specific concerns and give you a step-by-step explanation to follow.

- Tip 2.** To **navigate to a specific cell**, the arrow keys (▲, ►, ▼, ◀) or the keys for PgUp and PgDn can be used instead of the mouse. Enter will go down one cell, and the Tab key will go to the next cell to the right. Ctrl+Home will go to the first cell. Ctrl+End will go to the last cell.
- Tip 3.** For a **shortcut of the most common features** in Excel, place your pointer inside the cell(s), then click on the right mouse button. A menu with the most commonly used features will open. You can select the commands directly from there.
- Tip 4.** To **insert or delete an entire row or column**, select the column to the right of the place where you would like to insert a column, or the row below where you would like to insert a row. Right-click on the letter of the column or on the number of the row, and then select Insert from the pop-up menu.
- Tip 5.** To insert a paragraph break within a cell, click Alt+Enter.
- Tip 6.** To apply the same formatting of one cell to another cell or to a cell on a different sheet, use the **Format Painter**, which can be found in the Clipboard group of the Home menu. Highlight the source cell(s), click the format painter button, and then select the cell(s) to which you want to apply the formatting.
- Tip 7.** Excel can **follow a sequence** you type in, such as months, years, or a simple series of numbers. For example, Excel can add in all the days of the week in subsequent cells once you enter Monday into the first cell. To create such a series, click on the cell where you typed in the first item in the series (Monday). Move your cursor over the small square (handle) at the right bottom corner of the selected cell, left-click on the square, and while holding down the mouse button, pull the handle over the cell(s) to which you would like to extend the series (down or right). Let go of the mouse button, and the series will be displayed. This technique works for time, numbers, months, calendar, quarters, and a few other series. If you double-click the handle, Excel will fill in an entire series for a table column automatically.
- Tip 8.** To use a **formula or function** for ease in calculations and applications, start your cell input with an equal sign. For example, if you would like to multiply something by 2, write =  $x^2$ , where  $x$  can be a number or a cell (A1, B1, etc.). See “Formulas” under Excel Special Cheat Sheets for specific formulas to use for diverse mathematical functions.
- Tip 9.** If you want to **add up items in a column and/or row**, click on the cell below the list. For instance, if you want to add the numbers in cells B1–B10, click your cursor into B11. Then, select the Greek

symbol  $\Sigma$  on the Home tab in the Editing group to display the sum of the numbers listed sequentially above the selected cell.

- Tip 10.** If you had a **number that you wanted to display** as a percentage, decimal, or dollar amount, highlight the cell and on the Home tab, select the percent (%), decimal (.), or dollar (\$) sign in the Number group. Clicking on the corresponding symbol will display the number in the cell as a percentage, decimal, or dollar amount.
- Tip 11.** If you like to **use Windows Calculator** to perform quick calculations while in Excel, you can save time by adding it to your Quick Access Toolbar. To add a calculator, click Customize Quick Access Toolbar to the right of your Quick Access Toolbar (it looks like a small triangle pointing down), and then choose “More Commands.” On the left-hand side, choose “Commands Not in the Ribbon” from the drop-down menu, and you’ll see Calculator in the list on the left pane. Just click the Add button to add it to the toolbar.
- Tip 12.** To **place Excel data into MS Word**, you can
- a. **Copy and paste the table from Excel into the Word file.** This is the quickest and easiest way to move Excel data into a Word file. However, this method only lets you change values without relating to any corresponding formulas in other cells in the table.
  - b. **Embed Excel tables into your Word document.** Embedding the Excel data directly in Word enables you to change the data and related formulas in Word. Note, though, that the embedded table will no longer have a connection to the source file. Thus, there will not be any automatic updates to the inserted table when you change your source file and vice versa. To embed Excel data into a Word document:
    - Select and copy the range of data in Excel that you want to embed in your Word document.
    - In the Word document, click at the place where you would like to insert the Excel data. Then, in the Clipboard group of the Home tab, choose the Paste command.
    - Select a Paste Option in the pull-down menu under the Paste command. Once it is embedded, you can then click on the table in Word and edit the contents directly because it will display as an Excel spreadsheet. The only problem is that embedding a table in a Word file may make the file unwieldy as it increases file size substantially.
  - c. **Link Excel worksheets to an MS Word file.** If you link your Excel worksheet in Word to the Excel source file, the worksheet in Word will be updated automatically whenever you modify

your original Excel sheet. To link your Excel data, follow the exact same steps listed under (b), but select Paste Link from the Paste Special dialogue box instead of another paste option.

- d. **Insert an empty worksheet.** Choose the Insert tab and then the Table group, and there, click the small arrow to choose Excel spreadsheet from the menu.

- Tip 13.** To **hide columns and rows** and present a sheet that focuses on just the work area, select the row or column header from the row or columns to be hidden. Right-click within the selected rows or columns, and select *hide*. To unhide the column or row, select the row or column before and after the hidden ones, right-click, and select *unhide*.
- Tip 14.** To **show or hide formulas** when you are working in an Excel worksheet, you can alternate between viewing the values in the cells and displaying the formulas by pressing Ctrl+' (single left quotation mark). Note: The single left quotation mark is on the same key as the "~" symbol.
- Tip 15.** To **select a large data set**, select the top left-hand cell and then use Ctrl+Shift+↑/↓ to move to top/bottom cell in a column and row.
- Tip 16.** Use Ctrl+↑/↓ to jump to top/bottom cell in a column.
- Tip 17.** When reading or inputting data into a large table, it is useful to **freeze the horizontal or vertical panes**, or both, to orient yourself and keep columns and rows visible while the rest of the worksheet scrolls up and down. To freeze horizontal panes, go to the row below it, select the View tab, and in the Windows group, click *freeze panes*. The row header will be "frozen" when you scroll downward. To freeze vertical panes, go to the column on the right and repeat the same procedure. To freeze both vertical and horizontal panes, select the pane below and to the right and repeat the procedure. To unfreeze panes, select *unfreeze panes* in the Windows group of the View tab.
- Tip 18.** To **turn on the gridlines** so that they will print, select the worksheet or worksheets that you want to print. On the Page Layout tab, in the Sheet Options group, select the Print check box under Gridlines.
- Tip 19.** You can **sort your data columns and rows** in various ways, from alphabetical to values and colors. To ensure that corresponding rows and columns stay together as such, be sure to click *expand the selection* after choosing *custom sort* from the Sort and Filter command in the Editing group of the home menu.
- Tip 20.** To **create a chart** with the push of a keyboard button, select the data you want to include in the chart, including the labels. Press F11 key or the Alt+F1 keys.

## EXCEL SPECIAL CHEAT SHEETS

**Keyboard Shortcuts**


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Ctrl+'(apostrophe)	Copies contents of cell above
Ctrl+Pg up/Pg down	Move to next worksheet
Ctrl+↑/↓	Move to top/bottom cell in a column
Ctrl+Shift+↑/↓	Select to top/bottom of column
Alt+Enter	Wrap text in a cell
Click, then Shift+click	Selects cells between clicks
Ctrl+Click – while holding over different cells	Selects all clicked items
Ctrl+' (single left quotation mark)	Shows formula for the cell
Ctrl+;	Displays today's date

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**Fixing Common Error Messages**

Error messages start with a pound (#) sign.

#####	If you see railroad tracks, your column is too narrow. Solution: widen the column
#REF!	Your formula refers to a cell that no longer exists due to a change in the worksheet
#DIV/O!	You are dividing by an empty cell or zero. Solution: fix the formula's denominator
#NUM!	A formula or function contains invalid numerical values
#VALUE!	Your formula includes cells that contain different data types, such as text instead of a number
#NAME?	Your formula contains text that Excel does not recognize, such as a type or missing punctuation
CIRCULAR	When a formula refers to a cell in which it is located (e.g., A1=10 CANNOT BE USED in A1+10)

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**Formulas**

Addition of two cells	= A2+B3
Addition of a constant	= A2+10
Addition of a row of cells	= SUM(A1:C1)
Addition of a column of cells	= SUM(A1:A3)
Addition of a range of cells	= SUM(B1:C3)

Addition of scattered cells	= SUM(A2,B1,C3)
Subtraction of a constant	= A1-10
Subtraction of a cell	= B2-B1
Multiplication by a constant	= A1*10
Multiplication of two cells	= A1*B3
Multiplication by a percent	= A1*.40 or =B2*40%
Division by a constant	= A1/10
Division by a cell	= A1/B2
Exponentiation (square)	= A1^2
Exponentiation (cube)	= A1^3
Square root	= SQRT(A1)
Cube root	= A1^(1/3)
Increasing by a percentage	= A1+(A1*.4) or =A1*1.4 or = A1+(A1*40%)
Decreasing by a percentage	= A1-(A1*.06) or =A1*.94 or = A1-(A1*6%)
Calculate a percentage (part/Sum)	= A1/\$D\$3
Average of a column	= AVG(A1:A3)
Average of a row	= AVG(A1:C3)
Average of a range	= AVG(A1:B3)

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## GRAPHING WITH EXCEL

- Tip 1.** To **create a customized chart** in Excel, select the entire data range (including the headings). Then, choose the Insert tab followed by the chart type from the Charts group. Choose the chart subtype.
- Tip 2.** To **change the chart type** of your chart, right-click the chart and then click Chart Type.
- Tip 3.** You can **change the chart size** by dragging its corners. You can also change its location by dragging it to the desired place.
- Tip 4.** You can **format text and numbers on a chart** by right-clicking them and using the mini toolbar.
- Tip 5.** To **format areas in a chart**, select them with a click and then use the Shape Fill group from the Format tab.
- Tip 6.** To **reshape an axis**, right click on the axis and then choose *format axis* from the menu. Ensure that the Axis Options function is

selected on the left pane. Choose Fixed on the minimum and maximum row, and type the axis starting and ending number. Then select *fixed* on the Major unit row and enter the axis step between numbers. Click on Close.

- Tip 7.** To **plot a semilog graph**, double-click the *y*-axis, then from the Scale tab select *Logarithmic scale*.
- Tip 8.** To **create a log-log graph**, first create an XY (scatter) graph (see Tip 1). Select *Logarithmic scale* from the Scale tab.
- Tip 9.** Often, data tables contain empty cells or hidden data. It is possible to plot such data without a break in your plot and without first removing the empty cells or deleting hidden ones. Excel contains a function that allows you to choose **how empty cells and hidden data are plotted**. To configure such plots, click on the chart and select the Design tab under Chart Tools. Choose the Select Data button, and click on Hidden and Empty Cells. This lets you select either to display empty cells as Gaps or Zero or to graph a continuous line by choosing the *Connect data points with line* alternative.
- Tip 10.** To **add a trendline** or best-fit line to your graph, move the mouse cursor to *any data point* on the chart where you wish to create the trendline. When you left-click, Excel will highlight all the data points. Place the cursor on any of the highlighted points, then right-click and select Add Trendline from the pop-up window. Within the window that appears, select the display you want for your graph.

You can also display an equation and *R*-squared value on your graph by selecting Options in the window that pops up when you select Trendline, and then selecting Display Equation on Chart and Display R-squared Value on Chart.