Function Library

In this course, we touched on one of the mathematical functions available to us in Excel; the SUM() function. Excel offers over 200 functions for your use! We won’t cover all of them, but we will cover a few of the more important ones.

To access the Function Library, Insert—Function from the menu or click the Function button on the Tool bar. The screen at the right will appear. To select a function, first click on the category in the left panel, then click on the function in the right panel. Notice, that as you click on each function, a brief description of that function appears below the panels. Choose the Statistical category and the Average function, then click OK to proceed.

After you click OK, a Function Wizard is displayed in the upper left of your sheet. While this is a very useful window, many times, you need to refer to the cells that it covered! Don’t fret, just move the window by click-and-dragging the window to a place that’s out of the way. The bold dot in the figure to the left illustrates a good area to click on and the arrow shows where to move it to in this example. Essentially, when moving a window like this (note that there’s no title bar), any unused area of the window should suffice.

Now that our Function Wizard window is out of the way, we can continue with building the function. Turn the page and let’s go on.
AVERAGE Function
If, in our spreadsheet above, we wanted the average of the daily totals, we could use the formula:

\[
\text{Average} = \frac{B8 + C8 + D8 + E8 + F8}{5}
\]

But, imagine how tedious this would be if we had a hundred numbers to average! Instead, we could use the AVERAGE function. The Function Wizard for the AVERAGE function is shown in the above figure. There’s two ways to fill in the values to average:

1. Position the cursor in the box for Number1 and either click on cell B8 or type “B8.” Then click in the box for Number2 and click on — or type in — “C8.” Notice that when you clicked in the box for Number2, a third box appeared for Number3. This will repeat itself for as many values that you add. But, this is just as long as typing in the long formula above. Of course, there’s an easier way….

2. Starting over, click in the box for Number1. Then select the range of cells that make up the numbers you wish to average. As illustrated in the figure above, click-and-hold on cell B8 and drag across to cell F8. Now let go of the mouse button and the range B8:F8 should be in the Number1 box.

When you click the OK button, your AVERAGE formula will be evaluated.

The A-factor
There’s also another function in the Function Library called AVERAGEA. The difference between AVERAGE and AVERAGEA is that if you specify a range of cells, as we did in the second example, AVERAGE will ignore any text or non-numeric cell contents where AVERAGEA will consider them as zero entries.
PAYMENT Function

Since spreadsheet programs, like Excel, were created to originally help financial applications (Accountants, Analysts, etc.), the Function Library is stuffed with many complex financial formulas. Their parameters are entered similarly. To illustrate, we will examine the Payment function, PMT.

Refer to the figure above and enter the text in the A column, and only the values in B3, B4 and B5. Now click on B8 and call up the Function Library. Choose the Financial category and select PMT from the function list.

- **Rate** is the interest rate for the loan.
- **Nper** is the total number of payments for the loan.
- **Pv** is the present value, or the total amount that a series of future payments is worth now; also known as the principal.
- **Fv** is the future value, or a cash balance you want to attain after the last payment is made. If Fv is omitted, it is assumed to be 0 (zero), that is, the future value of a loan is 0.
- **Type** is the number 0 (zero) or 1 and indicates when payments are due (0 or omitted = At the end of the period; 1 = the beginning of the period)

Make sure that you are consistent about the units you use for specifying Rate and Nper. If you make monthly payments on a five-year loan at an annual interest rate of 12 percent, use 12%/12 for rate and 5*12 (or 60) for Nper. If you make annual payments on the same loan, use 12 percent for rate and 5 for Nper.

To find the total amount paid over the duration of the loan, multiply the returned PMT value by Nper. Put this formula in cell B10.
Microsoft Excel – Function Library

You don’t have to use the Function Wizard; you could type in the formula — even specifying cell ranges by the click-and-drag method.

Other Functions

Here’s a brief list of some of popular functions you may want to employ. Two of which we have already looked at in detail.

=NOW() - Returns today’s date
=AVG() - Returns the average of a range
=MIN() - Returns the smallest value in a range
=MAX() - Returns the largest value in a range
=COUNT() - Returns the numbers of items in a list
=PMT() - Returns the monthly payment for an amount borrowed
=ROUND() - Rounds of decimal numbers to a specified number of significant digits
=DB() - Returns the depreciation of an asset for a specified period using the fixed-declining balance method.
=DDB() - Returns the depreciation of an asset for a specified period using the double-declining balance method or some other method you specify.
=POWER() - Returns the result of a number raised to a power.
=LOWER() - Converts all uppercase letters in a text string to lowercase.
=UPPER() - Converts text to uppercase.
=VALUE() - Converts a text string that represents a number to a number.

Whether you use functions or formulas, if it needs to be applied to more than one row or column, you do not have to type in the formula every time. You can use the fill method to copy formulas.