

Excel Topics Used in SM222

BU Note # 222-2

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For SM222, you should know how to do the following tasks in Excel. The Help Section of Excel (choose contents) has explanations of all of these tasks. There will be at least one question on the first-week quiz using Excel formulas and relative and absolute references. Brief explanations are included below.

Task

1. Write formulas

All formulas must begin with an “=”. They use the standard mathematical hierarchical order: PEMDAS (parentheses, exponents, multiplication/division, addition/subtraction.) Exponents are denoted by a “^”. Formulas can include numbers and/or cell locations. Example: “=10+((c2^2)*4)” where C2 denotes the number in cell C2. This formula could also be written as “=10+c2^2*4” because of PEMDAS. A range of cells is denoted by a “:” such as C2:C10.

When a cell contains a formula, you see the number computed by the formula rather than the formula itself. When the cursor is on a cell, the underlying formula can be seen right about the body of the spreadsheet (under the Task Bars) in the “formula bar”.

You can enter the same formula into a range of cells by selecting the range first, typing the formula, and then pressing CTRL+ENTER.

Additional explanation can be found in Excel Help under the keyword formulas.

2. Edit formulas, copy formulas

See section “editing formulas”, especially “edit a formula” and “move or copy a formula.” In Windows in general, you can highlight text and copy it by hitting ctl-C, then move the cursor to where you want the text copied and hitting ctl-V.

Edit formulas, copy formulas *cont.*

A useful hint for editing formulas: If you hit F2 while at an Excel cell, you can directly edit the contents of the cell without going up to the formula bar.

3. Use the following functions: AVERAGE, SUM, LN, LOG, STDEV

Excel has many functions that it automatically calculates for you. For instance **=AVERAGE(C2:C10)** calculates the average of all of the numbers in cells C2 through C10, while **=SUM(C2:C10)** adds them up and **=STDEV(C2:C10)** takes their standard deviation. **=LN(C2)** takes the natural log (base e) of the number in cell C2. **=LOG(255)** takes the base 10 log of 255. Additional functions can be found in Excel Help.

4. Use relative and absolute cell references

When you copy a formula from one Excel cell to another, what happens to the cell references (e.g. B7) in the formulas depends on whether they are preceded by a "\$".

Whenever a formula includes a row reference number OR column reference letter preceded by a \$, copying the formula to another cell **will not change** that row or cell reference. However, if the row OR column reference is not preceded by a \$, copying the formula to another cell automatically changes the row or column reference by the number of rows and columns moved. For instance:

- If the cell A1 contains the formula "**= B7**", if you copy this cell (using **ctl-C** and **ctl-V**) to cell C5 -- which is *two columns to the right* (from A to C) and *four rows down* (from 1 to 5) from A1 – the formula will become "**=D11**" where the column is incremented by *two* letters (from B to D) and the row is incremented by *four* numbers (from 7 to 11).
- However, if the cell A1 contains the formula "**=\$B\$7**", then copying it to cell C5 or to any cell leaves the formula as "**=\$B\$7**".
- Instead, if the cell A1 contains the formula "**= \$B7**", then copying it to cell C5 (2 columns over, 4 rows down) makes the formula in cell C5 "**= \$B11**", where the row is incremented by 4 numbers (from 7 to 11) but the letter B does not change because the B has a \$ in front of it.

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4. Revealing formulas when printing or viewing a spreadsheet. To print a spreadsheet showing the formulas rather than the values that the formula takes, click: tools – options – view – formulas.
5. Printing a spreadsheet with row number labels and the column letter labels To print a spreadsheet showing the row and column labels, click File - page setup – sheet - row and column headings.
6. IF statements The form for IF statements is =IF(logical statement,expression1,expression2) where Excel will put expression1 into the cell if the logical statement is true, and put expression2 into the cell if the logical statement is not true. For instance: if a cell contains “=IF(b2>500,1,0)” Excel will put 1 into that cell if the number in b2 is greater than 500, and put 0 into that cell otherwise.
- You can use words or letters in IF statements by putting the words in quotation marks as in “=IF(b2=“yes”,1,0)”

An Excel question from a previous first-week SM222 quiz:

In an excel spreadsheet, the formula in column C, row 2 is: = B\$3/C1.

If I copy this formula into column C, row 5, what will this formula become?