

Excel 2007/2010: Formulas & Functions

This handout contains information about using formulas and functions in Excel. For introductory information about Excel, see the handout *Excel 2007-2010: Introduction*, at <http://www.snc.edu/techsupport>. For an explanation of the new features and formats common to all Office 2007 programs, see the handouts *Office 2007-2010: Getting Started* and *Office 2007-2010 File Formats*, at <http://www.snc.edu/techsupport>.

Spreadsheet concepts & definitions

Cell reference	A cell's location on the worksheet, e.g., the cell at the intersection of column A and row 4 is called cell A4 (the column heading comes first). By default, cell references are relative.
Relative cell reference	A relative cell reference is based on the relative position of the cell. If the position of the cell changes, all references to it are changed. If a formula containing a relative cell reference is copied across rows or down columns, the reference automatically adjusts.
Absolute (fixed) cell reference	An absolute cell reference refers to a cell in a specific location. If the position of the cell changes, the absolute reference remains the same. If a formula containing an absolute cell reference is copied across rows or down columns, the reference does not adjust. By default, cell references are relative; you must explicitly specify absolute references. To specify an absolute reference, use dollar signs (\$) in front of the column and row, e.g., \$A\$4.
Formulas	Formulas perform calculations within a cell. All formulas in Excel begin with an equal sign (=). For example: =(b3+b4+b5)/3
Functions	Functions are predefined formulas. Like formulas, all functions begin with an equal sign (=). For example: =average(1,2,3,4,5) will calculate the average of the numbers 1, 2, 3, 4, and 5. =sum(b3+b8) will add cells b3 and b8.
Cell ranges	Ranges of cells can be used in functions such as =sum() and =average() . When specifying a range, the colon (:) is equivalent to the word "through." Ranges are specified in the format: =function(beginningcell:endingcell) , e.g., =sum(b2:b8)

Common math & statistical formulas

Add a continuous range of cells (sum function)	<ol style="list-style-type: none"> 1. Click in the cell where you want the result to appear. 2. Type: =sum(beginningcell:endingcell), e.g., =sum(b2:b5). Note that a drop-down list of functions appears. Double-click one to select it and see the syntax. 3. Press Enter.
Add non-continuous cells	Start with an equal sign, then enter the cell references with a plus sign (+) between each one. e.g., =b2+b4+b7
Average a range of cells (average function)	<ol style="list-style-type: none"> 1. Click in the cell where you want the result to appear. 2. Type: =average(beginningcell:endingcell). e.g., =average(b3:b8) Note that when you start typing, a drop-down list of functions appears. Click once on one to see a definition. Double-click on one to select it and see the syntax. 3. As an alternative to typing the cell references, you can also click and drag to highlight the desired cells after typing the opening parenthesis, e.g., after typing "AVERAGE(", highlight the cells, then type the closing parenthesis ")". 4. Press Enter.
Divide	The slash (/) is the division symbol. e.g., to divide cell d11 by 5, type: =d11/5

Mean/Median	<ol style="list-style-type: none"> 1. Click in the cell where you want the result to appear. 2. Type: <code>=median(beginningcell:endingcell)</code>. e.g., <code>=median(b2:b8)</code>
Multiply	The asterisk (*) is the multiplication symbol. e.g., to multiply cell b2 by 5, type: <code>=b2*5</code>
Subtract	The hyphen (-) is the subtraction symbol. e.g., to subtract cell b1 from b4, type: <code>=b4-b1</code>

Other formula & function tasks

Conditional formatting	<ol style="list-style-type: none"> 1. Highlight the cells for the conditional formatting. 2. On the Home tab in the Styles group, click the Conditional Formatting button and choose the desired type of rule. 3. For the full dialog box showing all types of conditional formatting, choose New Rule, select the desired rule type and formatting, and click OK. 4. To remove conditional formatting, highlight the desired cells, click the Conditional Formatting button, choose Clear Rules – Clear Rules from Selected Cells.
Copy a formula to adjacent cells	<ol style="list-style-type: none"> 1. Click in the cell containing the formula. 2. Click and drag the black square in the lower right corner of the cell outline down or across the adjacent cells. Relative cell references are automatically adjusted.
Copy a formula without cell references adjusting	Most cell references (e.g., A4) are relative, so when formulas containing them are copied across rows or down columns, the references automatically adjust. To keep this from happening, you must use absolute cell references. When formulas containing absolute cell references are copied, the references do not adjust. To specify an absolute reference, use dollar signs (\$) in front of the column and row, e.g., \$A\$4.
Display dollar (\$) signs	<ol style="list-style-type: none"> 1. Click in the cell or click and drag over several cells. 2. On the Home tab in the Number group, click on the dollar sign (\$).
Format cell contents (font, alignment, etc.)	<ol style="list-style-type: none"> 1. Highlight the desired cell by clicking and dragging over them. 2. On the Home tab, choose the desired options, or right-click, choose Format Cells, choose the desired options, then click OK.
Functions	For all other functions, look in the Function Library group on the Formulas tab. Note that if you hold your cursor over a function name, a box will appear explaining it. For a list of all functions, click the Insert Function button and choose All from the category menu.
Number type, set or change	<p>The number type effects how or whether certain calculations can be performed. To change the number type:</p> <ol style="list-style-type: none"> 1. Click on the cell or click and drag over the cells you want to change. 2. On the Home tab in the Number group, choose the desired options. <p>Tip: When you want numbers to be formatted as text so that no calculations are performed on them (phone numbers, social security numbers, dates such as 2006-2007), type single quotes around them, e.g., '555-55-5555', '2006-2007'.</p>
Reference another sheet in a formula	<p>To reference a cell on another sheet in a formula, use the sheet name, followed by an exclamation point, followed by the cell reference. e.g., <code>=sum(Sheet2!A4, Sheet3!A4)</code></p> <p>You can also have Excel insert those references by changing tabs and clicking on the desired cells at the appropriate point when writing the formula. e.g., Type <code>=sum(</code>, click the Sheet2 tab, click cell A4, type <code>,</code>, click the Sheet3 tab, click cell A4, type <code>)</code>, press Enter</p>

Assistance and questions

If you have any questions or need more information, contact the Help Desk at (920) 403-HELP (4357) or helpdesk@snc.edu. The Help Desk is for St. Norbert College students and employees only.