



## Formatting Equations in Word Documents

Many students require the use of equations in their dissertations and theses. Equations require specific formatting which must be followed exactly; information about formatting equations can also be found in the *Preparation Manual for Theses and Dissertations* on the Office of Graduate Education (OGE) website. Microsoft Word allows for multiple different methods of achieving the correct formatting for equations; these methods are outlined below. Please note that the margins of this page are not set to the thesis and dissertation requirement.

### Equation Number Notation

All equations must be centered and identified by any equation number which is listed parenthetically at the right margin next to the equation. For example:

$$a^2 + b^2 = c^2 \tag{1}$$

Equation numbers may be noted in one of two ways: as a single Arabic number in sequential order throughout the entirety of the document, or with a chapter designator followed by the sequential number of that equation within the given chapter. Students with a large number of equations throughout their work often choose to identify them using a chapter designation, while those with only a few equations simply number them sequentially throughout the entire document. The above example shows the way in which equations may be numbered sequentially throughout a thesis or dissertation; see below for an example of an equation numbered with a chapter designation.

$$(x + a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k} \tag{1.1}$$

The red “1” indicates the chapter in which that equation is found and the second “1” indicated the order of the equation within that chapter. (Please note: the red text is used for example only; all text in a thesis or dissertation, including equation numbers, should be black.)

### Formatting Equations within a Word Document

There are 3 ways to achieve the correct formatting in Word: (1) to use the “Change to display” setting, (2) to use a table, (3) right align the entire line and manually center the equation.

1. To use the “Change to display” option: Insert your equation, hover over the equation (it should become highlighted in grey) and click. This should bring up a dropdown arrow; click on the arrow and select “Change to display.” The equation should automatically center but if it does not, click the dropdown arrow again, go to “Justification,” and select “Centered.” This setting will require you to put the equation number on the line below the equation.

$$A = \pi r^2 \tag{Equation line 1.2}$$

2. To avoid the placement of the equation number on the line below the equation, some students opt to format their equations within a small table. To do this, go to the “INSERT” tab at the top toolbar and select table then insert a 2 x 1 table in the desired spot in your manuscript (You may also choose to extend the table beyond one row if your thesis or dissertation requires a list of multiple equations in a row. You can then insert your desired equation into the left cell and the equation number in the right cell before adjusting

the cell sizes accordingly. Next, click in the equation number text box; under the “TABLE TOOLS” tab that shows up at the top toolbar go to “LAYOUT” Then under the alignment section, select the “Align Center Right” option which will center the text vertically within the cell and align it to the right horizontally. The inserted equation should be automatically centered within the cell. If not, you can use the same “Change to display” option described above. Finally, hover over the table and click on the square in the upper left corner which will select the entire table and reveal the “TABLE TOOLS” tab on the toolbar again. Go to “DESIGN” and click on the “Borders” button, then select “No Border.”

Please note: You may have to adjust the formatting of the table for correct placement of the equation and equation number. Notice that the table itself extends slightly beyond the defined page margins in order to allow the equation number to be aligned all the way to the right. You may also have to adjust the spacing of the equation to ensure that it is centered on the page rather than centered within the cell. It may be helpful to view the equation relative to the page number (if you are using bottom centered page numbers); the center of the equation should be directly over the page number. The borders on the below table have been left red as an example; borders must be hidden in your thesis or dissertation if using this method.

$f(x) = a_0 + \sum_{n=1}^{\infty} \left( a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$	(1.3)
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- The last option is to manually align your equation and equation numbers. This will allow the equation number to be on the same line as the equation and correctly aligned to the right margin. First, insert your equation, then type in the equation number next to the equation. If the document does not allow you to type directly next to the equation click on the equation and when the dropdown arrow appears, select the “Change to Inline.” This may change the alignment of the equation initially but will allow you to type on the same line as the equation. Next, left align both the equation and equation number. Finally, insert spacing manually that will align your equation to the center of the page. Again, it may be helpful to use the bottom centered page number as a guide or the toolbar ruler. The space below has been underlined in red as an example, red underlining should not appear in your text.

$$(1 + x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \dots \underline{\hspace{10em}} (1.4)$$