

Including Numbered Equations in Microsoft Word 2007

by

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I. Including and Customizing Macros

(Note: you need to perform this only once in a word document. We will be using the macros developed by Mr. Dong Yu, which is made available through the web by Microsoft. We have renamed the file to be DongYu.bas to make the inclusion of the macros easier.)

Step 1. Download and extract the file, **DongYu.bas** from the following zip file:

<http://www.chem.mtu.edu/~tbco/cm416/DongYu.zip>

Step 2. Press **Alt-F11** to open Visual Basic editor. Make sure that the **[Normal]→[Module]** subdirectory is selected (see Figure 1). Then select the **[File]→[Import...]** menu item to import the file **DongYu.bas**.

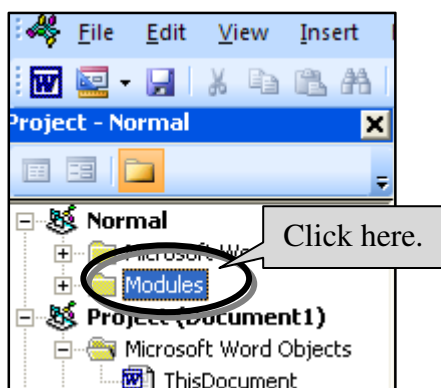


Figure 1. Selecting the **[Normal]→[Modules]** subdirectory.

Step 3. Press **Alt-F11** once more to go back to the Word document, then click “**Quick Access Customization Button**” as shown in Figure 2.

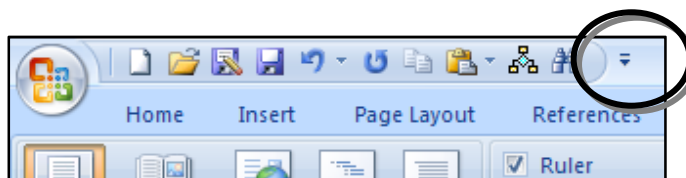


Figure 2. The quick-access customization button.

Step 4. A window should pop out. Select the items as shown in Figure 3 to include the macro **InsertNumberedEquation**.

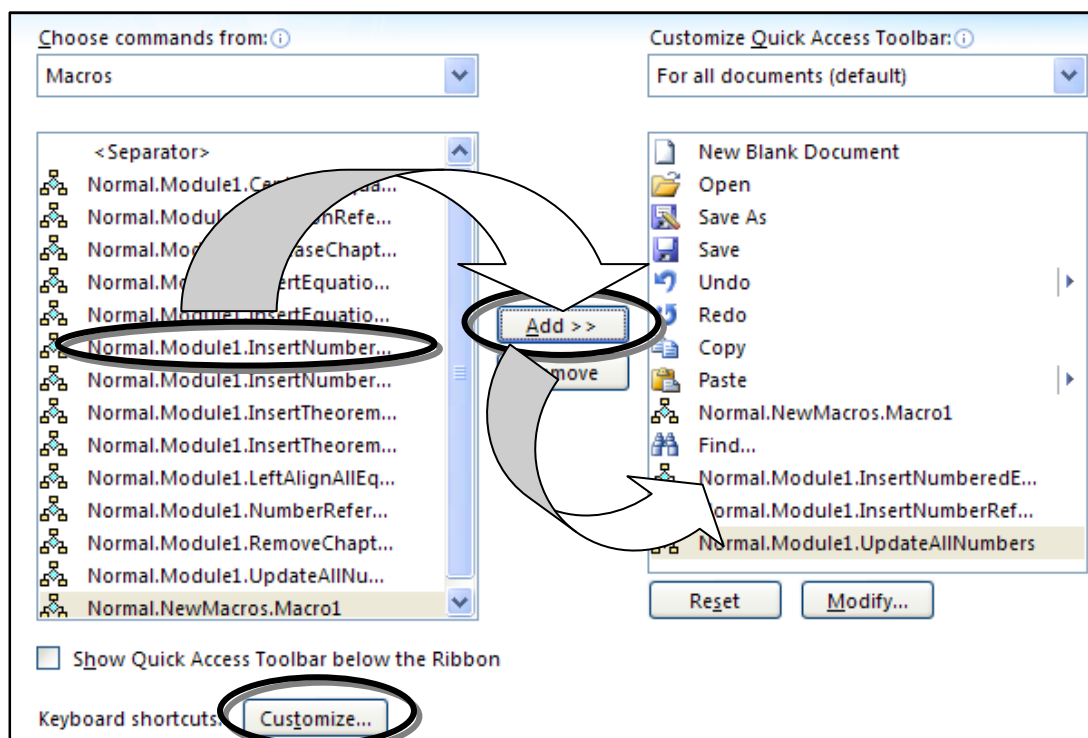


Figure 3. Adding **InsertNumberedEquation** macro into quick-access toolbar.

You can then include three more macros:

- InsertNumberReference**
- UpdateAllNumbers**
- IncreaseChapterNumber**

Step 5. Click the **[Customize]** button, shown in the lower left part of Figure 3. Assign the hot-key **[CTRL =]** to the **InsertNumberedEquation** macro as shown in Figure 4.

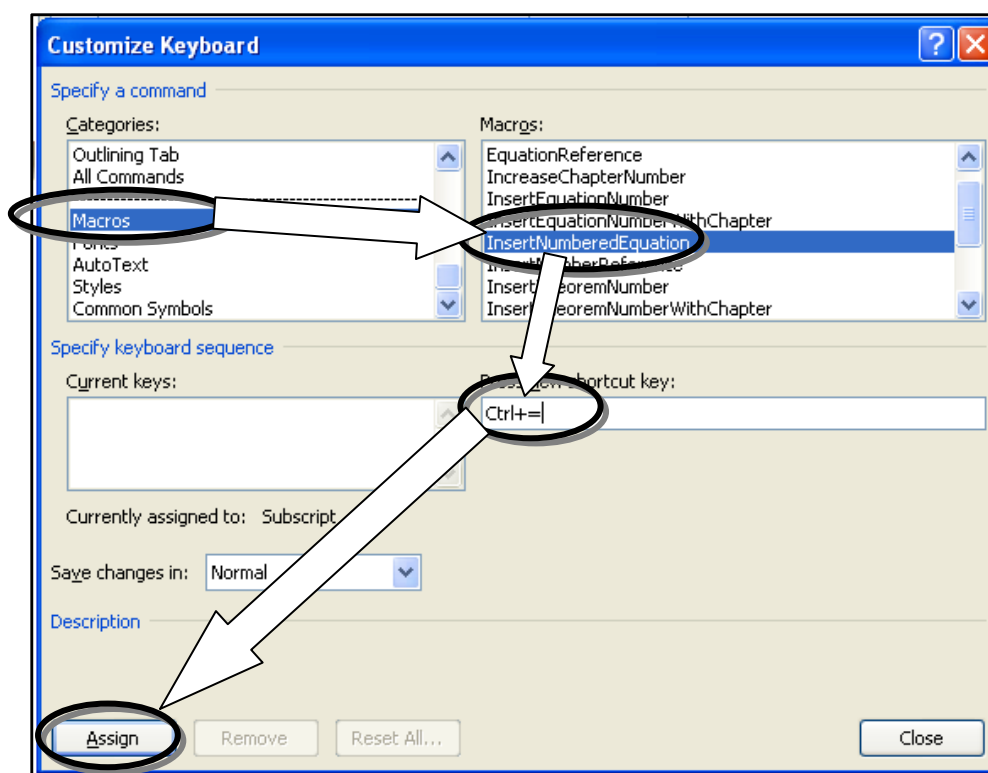


Figure 4. Assigning the hot-key **[CTRL =]** to **InsertNumberedEquation** macro.

You can then also assign the following hotkeys:

[CTRL Shift R]	to	InsertNumberReference
[CTRL Shift U]	to	UpdateAllNumbers and
[CTRL Shift C]	to	IncreaseChapterNumber

In the sections below, we will exclusively refer to the hotkeys suggested above. You can substitute your own hotkeys. Alternatively, such as when you have forgotten the hotkey designations, you can just use the quick access buttons.

II. Editing and Deleting Numbered Equations

1. To insert a numbered equation, start a blank line. Use the hotkey **[CTRL =]** and then insert the equation.

Link to: <http://www.chem.mtu.edu/~tbco/cm416/EquationEditorMain.pdf> for a tutorial on how to use keystrokes to input equations, where **[CTRL =]** replaces **[Alt =]** hotkeys.

2. To delete an equation, do not use **[undo]**. Instead, select the whole equation line, then use the **[backspace]** key.

After deleting the equation, use the hotkey **[CTRL Shift U]** to update the equation numbering sequence.

III. Referencing Equation Numbers

1. At the point where you want to include the equation number reference, use the hotkey **[CTRL Shift R]**.

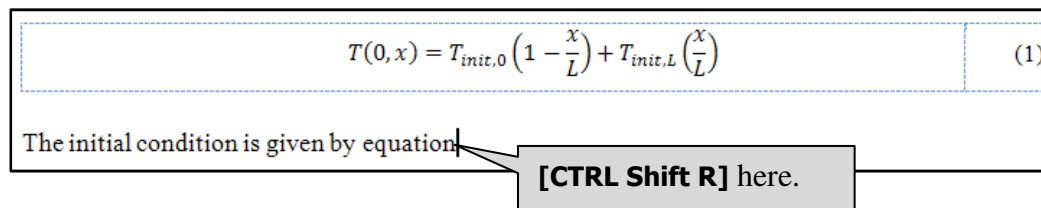


Figure 5. Fixing the reference insertion point.

(Note: the **InsertNumberReference** macro just reads the location of the desired insertion point after this hotkey has been selected. It does not change the document and it does not leave any hidden markers.)

2. Now go to the numbered equation you wish to reference and then double-click the equation number. Doing so will then collect this number and insert it at the point where you had selected earlier.

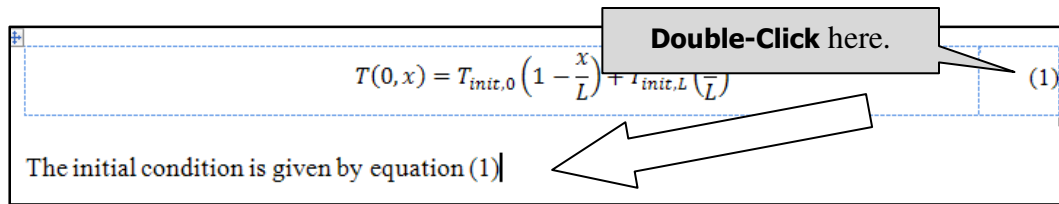


Figure 6. Transfer the equation number to the insertion point.

(Note: the **InsertNumberedEquation** macro actually makes each equation numbers as “Macrobuttons” which gets activated when double-clicked on. Thus it will read the equation number value and then insert this value at the insertion point.)

3. If any numbered equation has been deleted, the update hotkey [**CTRL Shift U**] will automatically update the references. However, any reference to a deleted equation will be replaced by the label: “**Error! Reference source not found**”.

IV. Formatting Equation Numbers with Chapters

1. To use formats such as (1.2) instead of (2), use the [**CTRL Shift C**] hotkey at the chapter title to increase the chapter number . This will automatically change the equation format, i.e. you can use the same procedures as discussed in the previous sections with the hotkeys [**CTRL =**], [**CTRL Shift R**] and [**CTRL Shift U**].

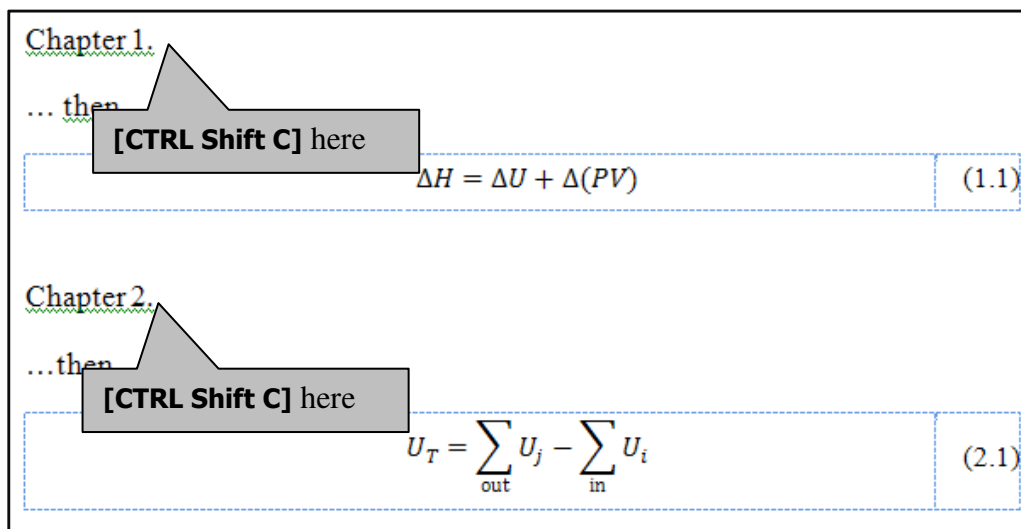


Figure 7. Example of including chapter numbers into equation numbers.

2. The **[CTRL Shift C]** hotkey inserts a hidden character (a northeast arrow) as an “increase-chapter-number” marker. To remove this marker, and thus decrease the chapter number sequence, use **[CTRL Shift 8]** to unhide all markers. Double-click on a chosen “increase-chapter-number” marker to remove it.

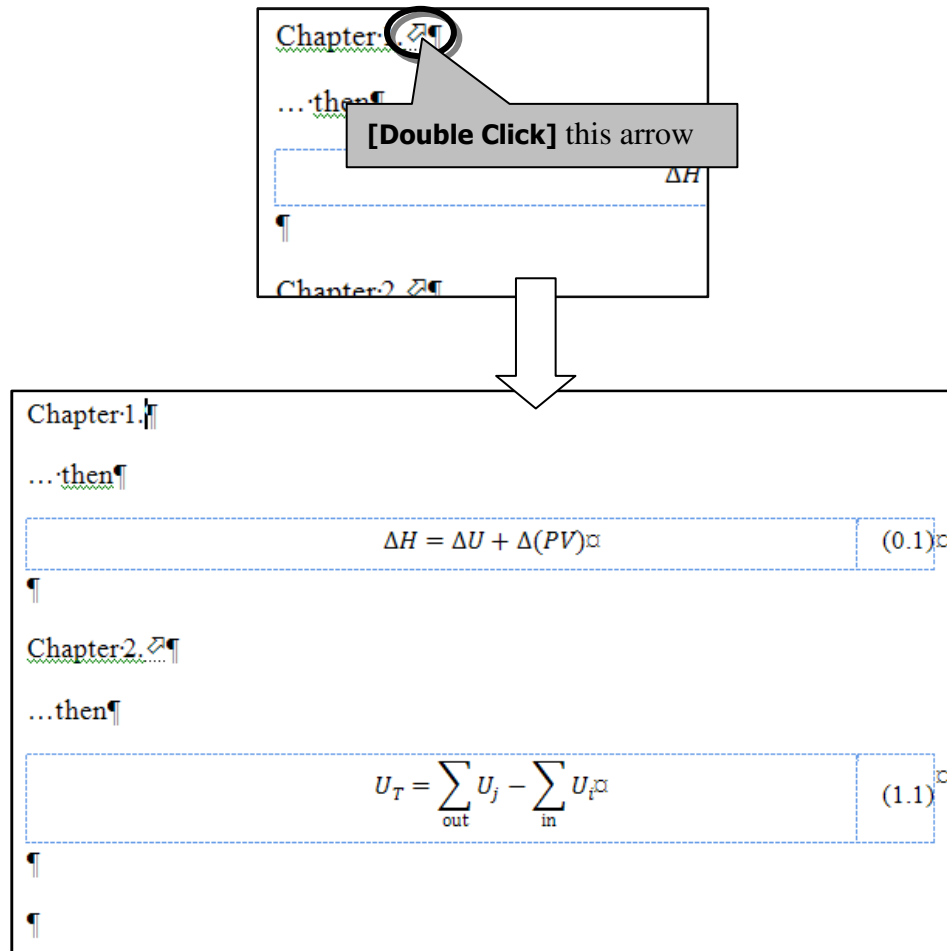


Figure 8. After **[CTRL Shift 8]**, double-click on the marker to decrease chapter numbers. (**[CTRL Shift 8]** one more time to go back to normal mode.)