Microsoft Word Formatting and Shortcuts for Materials Science Lab Reports

This document provides comprehensive information that will help you best utilize Microsoft Word to your advantage when formatting Materials Science Lab reports. Text in blue signifies information that is incredibly helpful, but not completely necessary. *NOTE: These instructions were created for Word on PC. The tools in Word may appear slightly different on Mac, but they should have similar names.*
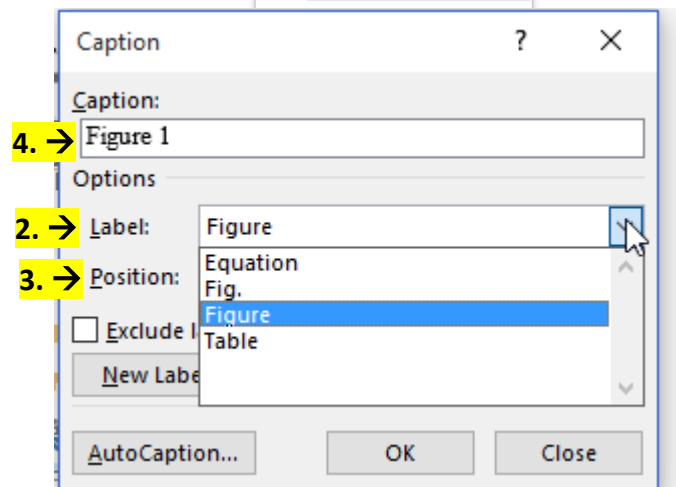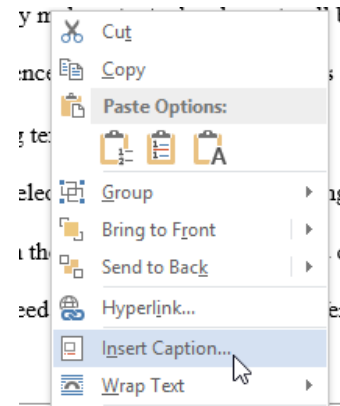
Tables and Figures

Tables and Figures are extremely important to any scientific report, as they communicate additional information that cannot be gathered from description alone. All Tables and Figures must have a caption and be numbered in the order that they are introduced in the text. Make sure all Tables and Figures clearly display the necessary information and are well-labeled. Any Tables/Figures that contain raw data or information not directly linked to the analysis should go in the Appendix.

How to insert captions

1. Right click on the table or figure & select Insert Caption

    OR

    1) Left click on the table or figure
    2) Go to the REFERENCES tab at the top of the document
    3) Select Insert Caption

2. Select the Label from the dropdown
    - Either Figure or Table

3. Select the Position from the dropdown
    - Figure – below
    - Table - above

4. Include the description
    - Either type it directly in the caption setting box, *OR*

    - Click OK and type next to where it displays on the document

5. Both the Table/Figure and its caption should be centered on the page.

6. If you rearrange your Tables or Figures in your report, right click on the number of the Table/Figure in the caption and select Update Field – this will automatically renumber your Tables and Figures based on their new order!

How to reference Tables and Figures in the text

Tables and figures need to be introduced **before** they are found in the body of the report!

1. Describe the contents of the Table or Figure

   a. The tensile strength of three different polymers was measured.
   b. The linear expansion of the metal was calculated as a function of temperature.

2. Then introduce which Table or Figure that information is found in. Tables and Figures should be introduced similar to: " … which is shown in Table 1."

   a. When referencing a Table or Figure by name in the text, you can either type it out (Table 1) or insert it using a tool described below. It will automatically update all the numbering if you rearrange Tables/Figures. NOTE: You have to have captioned the Table/Figure using the method described above *before* using this tool.

      i. Go to the REFERENCES tab at the top of the document

      ii. Select CROSS-REFERENCE from the CAPTIONS section

      iii. The window below will pop up.
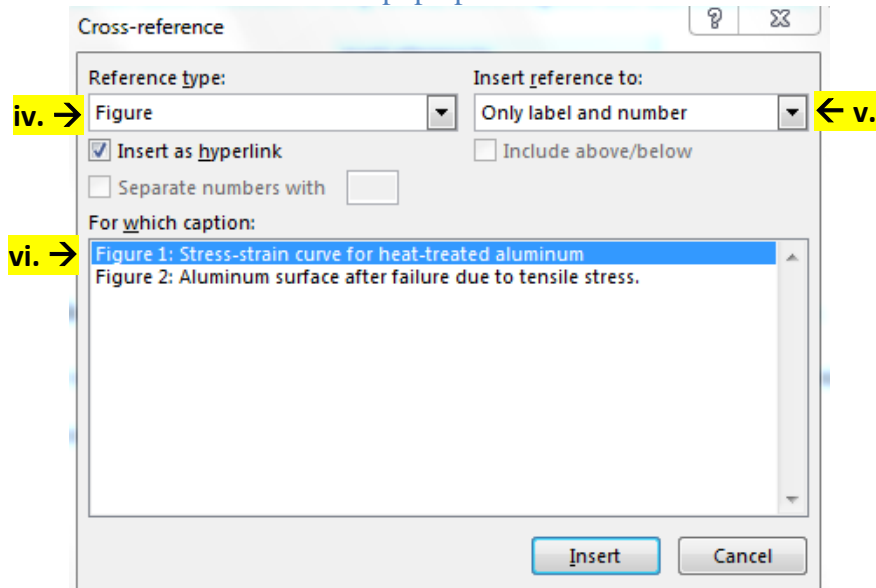
      iv. Select the Reference type (Table or Figure)

      v. Select 'Only label and number' from the dropdown [Insert reference to:]

      vi. Select which Table or Figure you want to reference from the ones listed in the box [For which caption:]

      vii. Hit insert, and the Table/Figure label will appear in the text. If you reorder any Tables/Figures, simply highlight the in-text reference and right click. Select Update Field. This will automatically change the numbering.

3. Put the Table or Figure into the body of your report where an appropriate paragraph break occurs.

- Tables should never be split between two pages!
- If it is an exceptionally large data set (raw data), put it in the Appendix

4. Be sure to address the information in the Table/Figure. Mention trends, particularly interesting values, or the relationship between data. If theoretical values for the properties tested in the lab are available, include the percent error.

a. The length of the copper rod increased much more than the length of the steel rod for the same change in temperature.
b. The untreated aluminum had a higher average hardness value on the Rockwell B scale than the treated aluminum.
c. The error between the experimental value for the tensile strength and the theoretical value was 15%.

Equations

Each report will contain equations that are used in the data analysis. Equations must first be introduced in the *Background* of the report!! Then reference the Equations by number when talking about them in the results. A sample calculation for each equation usually needs to be included in the Appendix. Equations should be given in sentence form, with an opening to the equation, the equation, and then an explanation of the variables (with units). ALL one sentence. Here is an example:

The force was calculated from Equation 1,

$$F = ma \tag{1}$$

where F is the force in Newtons, m is the mass in kilograms, and a is the acceleration of gravity, or 9.81 m/s^2.

How to insert equations and numbering

1. Go to the INSERT tab at the top of the document

2. Select TABLE, and insert a table that has 1 row and two columns

   a. The first column will contain your equation, the second column will have the number.

3. With your cursor in the first column, go to the INSERT tab again, and this time select Equation

4. Another tab should pop up at the top of the document called EQUATION TOOLS

   a. Use the tools such as Fraction, Script, Symbols, etc… to format the Equation properly

5. Just like Tables and Figures, Equations should be numbered in the order that they are introduced in the text.

    a. You can either simply type the number of the Equation in parenthesis in the second column of the table, OR

    b. You can use the caption tool, which will renumber your Equations automatically should you choose to reorder them

        i. Go to the REFERENCES tab at the top of the document

        ii. Select INSERT CAPTION from the CAPTIONS section

        iii. Select New Label

            1. NOTE: Although Equation is an optional label, remember that we want to include only the number

   iv. The window below that says New Label will pop up, and type a space in the box that says label.
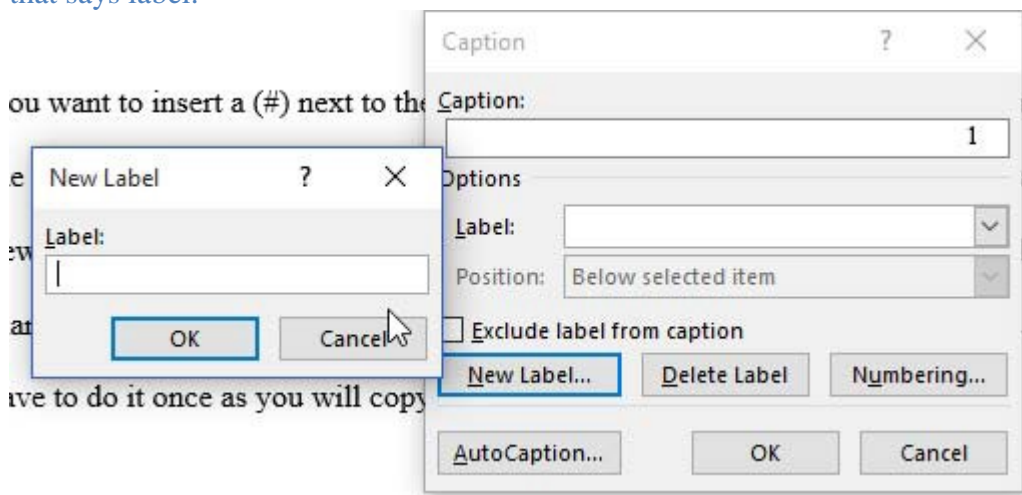
        v. Notice that your caption now only has the number.

        vi. Select OK, and the number will appear above or below the table with your Equation in it.

        vii. Cut and paste the number into the second column and put parentheses around the number

        viii. If you rearrange the order of your equations, highlight the number in parentheses and right click, then select Update Field. This will automatically renumber them.

        ix. If all your equations are numbered using this method, you can also follow the steps listed in blue under "How to reference Tables and Figures in the text" to reference your Equation numbers in the text.
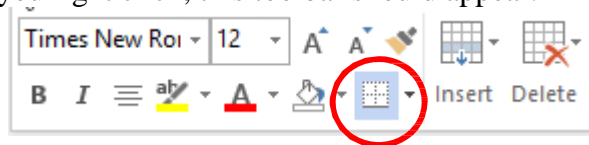
6. Make sure that the equation itself is centered on the page. You will likely have to adjust the size of the columns or change the positioning of the table or the text in the table.

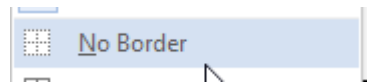7. Get rid of the table borders

   a. Hover over the table and right click on the arrow on the left hand corner of the table.
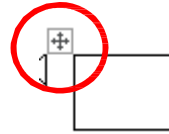
   b. When you right click, this toolbar should appear.

   c. Select the dropdown menu circled in red, and select no borders.

Bibliography

There is a super helpful references tool in Word that will create your citations for you. Word will then create a bibliography for you and will also format in-text citations. Use this tool, NOT an online citation machine! Also, don't wait until the last minute to add in your references – as soon as you find a new source, add it to your document.

How to add a new source

1. Go to the REFERENCES tab at the top of the document

2. In the Citations and Bibliography Section, make sure that the Style is set to APA
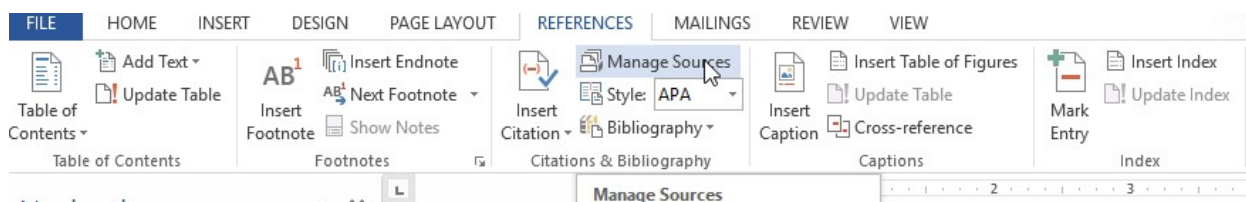
3. Click Insert Citation, and then select Add New Source

4. A new window will pop up. Choose the correct Type of Source from the dropdown, and enter all the necessary information in the boxes below. If any information is not available for your source, just leave those boxes blank

5. Click Save

How to add an in-text citation

1. First add all your sources using the method described above.

2. To add an in-text citation, go to the REFERENCES tab and click Insert Citation.
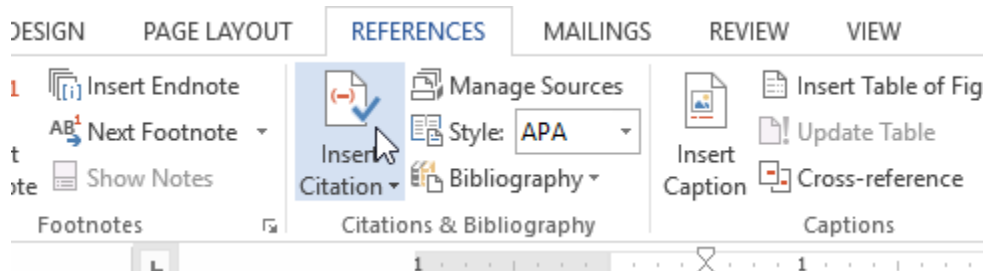
3. From the dropdown, select which source you want to cite.

4. The proper in-text citation will be inserted where your cursor was – just copy and paste it if it needs to be moved.

How to insert a bibliography

1. Go to the REFERENCES tab and select Manage Sources

2. There will be two lists, a Master List of sources and a Current List of sources. Make sure that all the sources you cite within your report are in the current list column

   a. To move sources to your current list, click on the source and select Copy
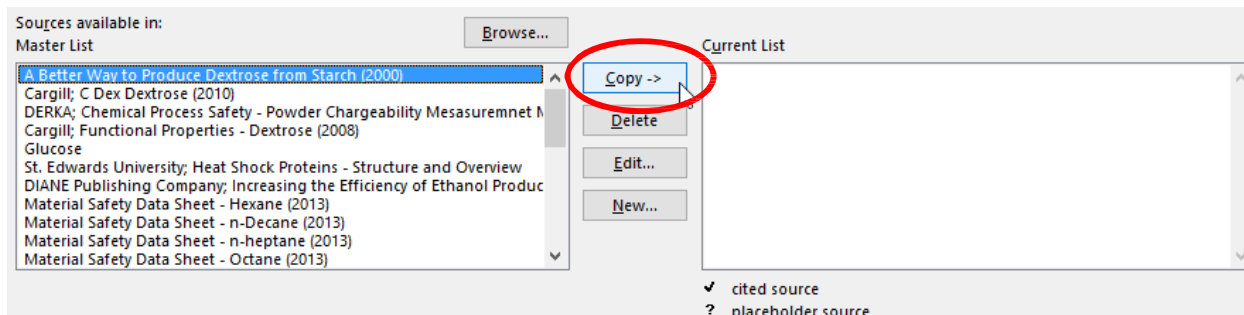
3. Click on Bibliography, and select the type of bibliography you want from the dropdown

4. A properly formatted and alphabetized bibliography will be inserted where your cursor was

5. If you need to make changes to any of your citations, go to Manage Sources, select the citation and click Edit.

   a. After making changes, make sure to click on your bibliography and hit Update Citations and Bibliography