General guidelines on writing scientific text for students of the MDO Group

(Disclaimer: This is my personal view and do not represent views of all research groups at UNSW)

1. Font sizes consistent; Title, Section Headings and Body text are in the right font sizes. Make sure you don't write "**P**roposed **A**pproach" as a Section title and write "**C**ontemporary approaches" in another section.

2. Make sure Figure and Table captions are placed in the correct location. Table caption on the top of the table and figure caption at the bottom of the figure. Take note of any template instructions in terms of font size, margins and maximum number of pages. References section is before Appendix.

3. Font sizes within figure to be consistent. Same font size, same axis label size, same legend size. Use markers or colors sensibly. If someone prints in BW, they may not see the different between a line in red and a line in blue. You can change line type to make that clear. Fonts across Figures should be consistent. Do not randomly stretch and cut copy as they will not yield same size. Pay attention to the legibility when you have figures with legend, axis label etc etc. I normally don't use Figure title in the Figure image as I use the Figure Caption to convey that.

4. References should be complete. Grab information via Google Scholar. Make sure the format of representation is consistent and all information is complete i.e. page numbers etc etc.

5. In the text, references, figures and tables should be called in order. There should not be any unreferenced figure or table. Similarly, there should not be any reference that appears in your reference list but never referenced in the text.

6. When discussing results, be succinct with your comments. It is of no use to present a whole stack of tables with values which is not discussed in the text. The same applies to figures. You need to talk and point to observation which you want the reader to take note. Statements like the convergence is presented in Figure 1 is a poor statement. Much better is "From the convergence plots presented in Figure 1, one can note that A decreases at a higher rate than B". Once again, don't say "Figure 1 presents" as Figure one is not presenting and what you mean is the results are presented in Figure 1.

7. Read thoroughly and see if the lines of text are absolutely necessary i.e. avoid any reputation. Also the statements should be technically correct and complete without any ambiguity. Spell out upfront the scope of the study, the intent and the assumptions. You also need to state what you are delivering as a product/approach. Whenever you use an acronym, spell it out first and then you can use SEM etc etc.

8. Equations should be numbered and every variable in the equation should immediately be defined.

9. Typically, in a research report, these are the things to look out for
   a. Does the title convey the scope of the study. Avoid too long titles.
   b. Abstract: Be clear what it is all about. What problem was studied and what did it deliver. What is the scope. What is novel and why it is significant. What examples have been used and what comparison metrics were used and what was the claim in terms of performance.
   c. Background. It talks about the problem. It talks about what are the existing approaches to deal with the problem which have been reported in the literature. When you write such things, think about whether you can classify them and against each talk about their limitations. I would drive the reader towards my contribution when I point at the limitations of prior work. Classification is the key. Remember, you cant just randomly jumble ideas based on each paper. It is your job to classify them properly so that a reader is clear what to expect rather than reading the whole lot to generate a mental map of it.
   d. Proposed approach. Following on from the above, I would draw the attention to the limitations of the existing methods and suggest my strategies to deal with the challenges identified earlier. Define the steps with clarity and indicate what it is likely to do better than what exists. Here "why is the key". You need to provide the rationale as to why your method is likely to alleviate the problems and on what aspects its likely to offer an edge.
   e. Results/Numerical Experiments; All settings of tests to be outlined. All measurement/analysis protocols need to be listed with complete details. Rationale of comparison with other methods. Why did you choose to compare the performance with method B, C and D. Why did you choose to test on P, Q and R test problems or settings. What are the observations ? Its not good enough to say methods A delivered better results than method B. You need to say why it did better from its underlying principles.
   f. It is also important to have a closing remark indicating further work (usually last few sentences in Conclusion) section, i.e. to tell the audience what one could have done more to improve it and some potential directions worth pursuing.
   g. When you generate Figures/Flowchart etc. etc., please take note that you need to use larger font sizes in the plots so that when they are scaled and put into the draft, the font sizes match the text sizes. For example, if the text is 12 pt, the labels or legend in figures should appear like 10 pt atleast when the figure appears in the paper/draft.
   h. The structure and flowing the structure is very important. If you list problems as A, B and C, please make sure you discuss them in order of A, B and C.
   i. Be mindful of plagiarism and integrity. Are recent references being discussed ? A quick check on your reference list would indicate that. Are reliable and top end sources being used in the background literature ? How comprehensive is the literature review ? Good to provide what was it based on ?