**Report structures to be used in ECE 1513**

**YOUR REPORTS NEED TO BE SUBMITTED IN A PDF FORMAT.**

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| Part of the report |
| **Introduction**: |
| 1. **Function**: The function of the Introduction is to:  * Establish the context of the work being reported. This is accomplished by discussing the relevant primary research literature (with citations) and summarizing our current understanding of the problem you are investigating; * State the purpose of the work in the form of the hypothesis, question, or problem you investigated; and, * Briefly explain your rationale and approach and, whenever possible, the possible outcomes your study can reveal. * Quite literally, the Introduction must answer the questions, "What was I studying? Why was it an important question? What did we know about it before I did this study? How will this study advance our knowledge?"  1. **Style**: Use the active voice as much as possible. Some use of first person is okay, but do not overdo it. |
| **Methodology**: |
| 1. **Function**: In this section you explain clearly how you carried out your study in the following general structure and organization (details follow below):  * the experimental design (i.e., how the experiment or study was structured); * the protocol for collecting data, i.e., how the experimental procedures were carried out, and, * how the data were analyzed (qualitative analyses and/or statistical procedures used to determine significance, data transformations used, what probability was used to decide significance, etc).   Organize your presentation so your reader will understand the logical flow of the experiment(s); subheadings work well for this purpose. Each experiment or procedure should be presented as a unit, even if it was broken up over time. The experimental design and procedure are sometimes most efficiently presented as an integrated unit, because otherwise it would be difficult to split them up. In general, provide enough quantitative detail (how much, how long, when, etc.) about your experimental protocol such that other engineers could reproduce your experiments. If applicable, you should also indicate the statistical procedures used to analyze your results, including the probability level at which you determined significance (usually at 0.05 probability).   1. **Style**: The style in this section should read as if you were verbally describing the conduct of the experiment. You may use the active voice to a certain extent, although this section requires more use of third person, passive constructions than others. Avoid use of the first person in this section. Remember to use the past tense throughout - the work being reported is done, and was performed in the past, not the future. The Methods section is not a step-by-step, directive, protocol as you might see in your lab manual. |
| **Results**: |
| 1. **Function**: The function of the Results section is to objectively present your key results, without interpretation, in an orderly and logical sequence using both text and illustrative materials (Tables and Figures). The results section always begins with text, reporting the key results and referring to your figures and tables as you proceed. Summaries of the statistical analyses may appear either in the text (usually parenthetically) or in the relevant Tables or Figures (in the legend or as footnotes to the Table or Figure). The Results section should be organized around Tables and/or Figures that should be sequenced to present your key findings in a logical order. The text of the Results section should be crafted to follow this sequence and highlight the evidence needed to answer the questions/hypotheses you investigated. Important negative results should be reported, too. You should usually write the text of the results section based upon the sequence of Tables and Figures. 2. **Style**: Write the text of the Results section concisely and objectively. The passive voice will likely dominate here, but use the active voice as much as possible. Use the past tense. Avoid repetitive paragraph structures. Do not interpret the data here. The transition into interpretive language can be a slippery slope. |
| **Discussion:** |
| 1. **Function**: The function of the Discussion is to interpret your results in light of what was already known about the subject of the investigation, and to explain our new understanding of the problem after taking your results into consideration. The Discussion will always connect to the Introduction by way of the question(s) or hypotheses you posed and the literature you cited, but it does not simply repeat or rearrange the Introduction. Instead, it tells how your study has moved us forward from the place you left us at the end of the Introduction. Fundamental questions to answer here include:  * Do your results provide answers to your testable hypotheses? If so, how do you interpret your findings? * Do your findings agree with what others have shown? If not, do they suggest an alternative explanation or perhaps an unforseen design flaw in your experiment (or theirs?) * Given your conclusions, what is our new understanding of the problem you investigated and outlined in the Introduction? * If warranted, what would be the next step in your study, e.g., what experiments would you do next?  1. **Style**: Use the active voice whenever possible in this section. Watch out for wordy phrases; be concise and make your points clearly. Use of the first person is okay, but too much use of the first person may actually distract the reader from the main points. |
| **Conclusions:** |
| Make a conclusion based on the obtained results and your discussion. |
| **References:** |
| Cite any relevant references. |
| **Appendices:** |
| An Appendix contains information that is non-essential to understanding of the report, but may present information that further clarifies a point without burdening the body of the presentation.  ALL YOUR CODES SHOULD COPY-PASTED HERE. |