

## Common errors, mistakes and shortcomings in PHY 310-320 report submissions plus some extremely good advice

- Read your report aloud to yourself. If something does not *sound* right to you, it likely won't sound right to me. And you might catch errors like the 'you' needing to be 'your' in the first sentence. Keep this in mind: If you write it, I must read it – and that includes equations. By the way, weave equations into the narrative so they can be read. Be mindful of correct punctuation. Examine examples in texts so you may emulate them.
- Error analysis is essential, i.e. your submission is incomplete without it. The *analysis* entails a thorough exposition of the details of the method and reasoning you used in arriving at error estimates. This extensive exposition represents an exception to the form of the model paper available on-line.
- *Descriptive* captions are required for figures and tables, including any in an appendix.
- Use expository text to *explain* any calculation or analysis. Disembodied equations without expository text are unacceptable. This includes appendices.
- **You are permitted up to three misspellings in your report. Four or more misspellings will result in a grade of F for the submission.** I will stop evaluating the submission at the fourth misspelling. Be mindful of the standard use of capitalization.
- Do not offer unexamined guesses for sources of error. If you speculate, you need to offer rationale and *physical* mechanisms that you investigated to substantiate some part of your speculation.
- You are proscribed from using the words 'first', 'then', or 'next' in the abstract of any submission. Use of any of the proscribed words will result in a grade of F for the submission. Also, do not begin your abstract with the phrase "The purpose of this experiment was ..." or any similar formulation. Be wary of the use of the proscribed words even in the narrative.
- Do not use weak constructions such as 'This was done', 'This was repeated', 'This was accomplished,' or 'We did this.'
- Avoid vague, ineffectual phrases such as 'fairly accurate' without quantification.
- Be *very* wary of the use of the word 'prove.'
- Use subscripts and superscripts.
- You invariably need to present the theoretical foundation of an experiment before you describe the experiment. And do not make an "Experimental" section a low-class description of the procedure you followed, having all the warmth and appeal of a Betty Crocker recipe. Examine the model submission available on-line. The Introduction of your submission is your opportunity to convey that you have mastered the background and context of the experiment. It is not a mini-history.
- Don't say "... was recorded." You do not need to fear that the reader supposes you memorized data.
- Do not use the term "accepted value." Give a reference for any published value you quote.
- Make the titles of your submission descriptive. Consider the title "Planck's Constant" versus the title "A determination of Planck's constant using the photoelectric effect."
- Be extremely wary of any sentence whose subject is the word "there." Rewrite such a sentence with a proper, strong subject.
- Be extremely wary of internet references. Internet references largely are not peer-reviewed and are potentially unreliable. If you submit a report with incorrect information based on an internet reference, your submission will receive a failing grade. You may use up to three internet references; no more. Use published information from peer-reviewed sources.