How to Write Better Scientific Lab Reports

What Lab Reports and Scientific Papers Do:

- Persuade others to accept or reject hypotheses by presenting data and interpretations.
- Details data, procedures, and outcomes for future researchers.
- Provide an archival record for reference and document a current situation for future comparison.

Parts of a Lab Report: An AWESOME Lab Report

I. Title
II. Introduction /Purpose
III. Abstract
IV. Materials
V. Method/Procedures
VI. Data
VII. Conclusion
VIII. References (if applicable)

****When writing lab reports for this class, you will need to address the following requirements: (unless instructed otherwise)**

I. Title:

- The title tells readers what the document is. Indicates the subject of your research. Reflect the factual content with less than ten words in a straightforward manner.

II. Introduction/Purpose:

- Define the subject of the report – Why was the study performed?
- Provide background information and relevant studies – What knowledge already exists about this subject?
- Outline scientific purpose(s) and/or objective(s) – What are the specific hypotheses and the experimental design for investigation?

III. Abstract:

- A standalone mini-version of the paper.
- Summarizes the main sections of the paper.
- States the purpose, findings, and impact of the work.

IV & V. Materials and Method/Procedures:

- List the materials used
- List the procedures to be followed. This is like a cooking recipe. Include enough detail so that someone can repeat the experiment. It is important that the reader be able to interpret the results knowing the context in which they were obtained.
- The Materials and Methods section should be written in the past tense, since your experiments are completed at the time you are writing your paper.

VI. Data/Results:

- To write the results section, use the figures and tables as a guide. Start by outlining, in point form, what you found, going slowly through each part of the figures. Then take the points and group them into paragraphs, and finally order the points within each paragraph. Present the data as fully as possible, including stuff that at the moment does not quite make sense.
- Verbs in the results section are usually in the past tense. Only established scientific knowledge is written about in the present tense, "the world is round," for example.
- Summarize the data into tables, figures, graphs, photographs, etc.
- Title all figures and tables; include a legend explaining symbols, abbreviations, or special methods.
- Number figures and tables separately and refer to them in the text by their number.

VII. Discussion/Conclusion:

- Interpret and analyze the data; do NOT restate the results.
- Relate results to existing theory and knowledge
- Explain logic that allows you to accept or reject your original hypothesis.
- Answer any questions assigned as part of the lab experiment.
- Include suggestions for improving your techniques or design (error analysis), or clarify areas of doubt for further research.

VIII. References/Literature Cited (if applicable) - Not every instructor will require these sections, but if outside sources have been cited, a reference list will be needed.