

Formal Experimental Lab/Research Writing Guide

Objective: The student will communicate in a written report the experimental procedures and the analysis in such a way that an investigator could reproduce the experiment.

Title- descriptive yet concise

Introduction – What and Why

1. Background information on problem stated (observation? previous study? importance? uses?)
2. Purpose (objective) of the experiment
3. Relate background information to hypothesis
4. Hypothesis stated in hypothetical-deductive reasoning format (If..., then.)

Materials and Procedures – How

5. Location of study stated (if applicable)
6. List of specific information on materials and equipment used
7. Experimental design concisely and completely described
 - a. Variables outlined or stated: independent (manipulated), dependent (responding), constants
 - b. Operational definitions of independent (manipulated)/dependent (responding) specified
 - c. Number of trials performed or time period of study stated (if applicable)

Results and Data Analysis

8. All data (qualitative/quantitative) recorded in a table
9. Graph (if applicable)
10. Analyze data and note general patterns
11. Show all calculations (or sample calculations if applicable)
12. Results summarized in written form

Conclusion

13. Relate the results to the purpose
14. Interpret results
 - a. Describe patterns and correlations identified and explained
15. Statement of confirmation or rejection of experimental hypothesis
 - a. Explain why the results confirm or deny the hypothesis
16. Limitations and errors of experiment
17. Possible errors/weaknesses (identify possible errors without demeaning the study)
18. Application to real-world and possible areas of further study
19. “These findings lead to the conclusion that....”
20. Answer any post-lab questions

Basic Style:

- I would like you to avoid the use of personal pronouns (I, we, us, you, our, yours)
- Double space and use 12pt font (*with nothing fancy*)
- Use section headings that stand out and are in the correct order (i.e. Conclusion comes last!)
- Break complex ideas down into several short sentences, especially in the methods section where you could go on and on about how you did something adding more and more information until you have an unwieldy beast of a sentence full of comma splices and run-on sentences until you sound like the scientific version of a Dickens novel (also, stay on topic).
- All distances, sizes, dimensions, etc. given in metric
- Seek clarity, brevity and simplicity in your writing; don't use several words where only one, single, lone, solitary word will suffice.
- Like, u don't use contractions, slang or texting lingo (LOL) and stuff
- Make proper use of terms, descriptors, calculations, correlations and equipment
- Be logical, consistent, lucid and concise avoiding loquacity and extraneous fluff
- Instill the importance of the study into the audience