

Format for Experimental Papers

You are expected to write up and submit a separate lab report for each experiment. Treat each report as if you are submitting it to a professional journal as an original contribution to scientific research. Below is the prescribed format for experimental papers. Most or all of these sections should appear in your report. You can also incorporate the tables and figures into the body of the text, omitting these sections.

Title, Author, and Affiliation: This is self-explanatory. Look at articles in research journals for examples of the correct format.

Abstract: A separate and concise summary of the experiment and results. It should give the reader a general outline of what was achieved, without going into detail. Final numerical results with errors should be included. However, do not put tables or figures in the abstract. The total length should be between 150 and 300 words.

Introduction: This section gives a short introduction to the subject. It should include what other researchers have done and some motivation for doing the experiment. (Why is it important?)

Experimental Procedure: Describe how the experiment was carried out, including the problems you encountered. A diagram of the experimental setup should also be incorporated. Some specifics such as what a typical waveform looks like may be put in an Appendix.

Analysis and Results: In this section, describe the analysis of the data and present your results. You must discuss systematic and statistical errors. You may want to use figures and tables, but do not include tables of raw data.

Conclusion: Outline the main achievements and possibly the limitations of the experiment. Also include any comments in this section. The main result can be restated here. You should try to answer two questions here: (1) How can this experiment be improved to get more accurate results? (2) Can this experiment be done by using a different technique or method to obtain more accurate results and/or more information?

Acknowledgments: You must acknowledge any help you received that is not directly referenced. These are mainly comments from your colleagues, faculty, and your supervisors that have helped your work. Also acknowledge funding sources and any nontechnical help that you received if applicable.

Appendixes: If necessary, include any detailed descriptions or calculations whose derivation is of little interest to the main flow of the report. For example, include what a typical waveform looks like and your raw data in the Appendix instead of the Analysis and Result Section if they do not contribute to understanding the analysis or results. However, do not overuse the Appendix. For example, none of your graphs should appear in the Appendix unless they only apply to the discussion in the Appendix.

References: Any mention of other scientists' work must be referenced. List references in order of appearance by numbering them both here and in the text.

Tables: If you do not incorporate the tables directly in the text (most word processors allow this), then place each one on a separate page in this section. Each table must be referred to in the body of the text and have a caption.

Figures: If you do not incorporate the figures directly in the text, then place each one on a separate page in this section. Each figure must be referred to in the body of the text and have a caption describing what is in the figure.