

Abstracts

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Abstract—An Abstract is a mini-version of a paper and should cover the key points, including findings and conclusions. It should be written AFTER the rest of the paper, once those key points are known. The Abstract should allow the reader to judge immediately whether the paper will be useful to his or her purposes.

I. WHAT TO INCLUDE IN THE ABSTRACT

The purpose of the Abstract is to summarize the most important information in a document, AFTER the document has been written. The Abstract might be the only part of your paper that ever gets read. Thus, it is important that the Abstract can stand alone as mini-paper in and of itself. The Abstract should cover four main sections from your paper:

- Purpose and scope of the project
- Methodology
- Key findings or observations
- Significance and Conclusions

Each of these points should be summarized in 1-2 sentences. A good length for an Abstract is 100-200 words and one paragraph. The Abstract must be written in proper English, not in abbreviated headlines. You should assume that your reader is knowledgeable in the general discipline, but not necessarily in your particular project. An Abstract is sometimes also known in corporate environments as an “Executive Summary.”

II. WHAT NOT TO INCLUDE IN THE ABSTRACT

An abstract does NOT include the background of the project or discipline, literature surveys, author motivations or intentions, opinions, or recommendations (unless they were the specific focus of the project). It should NOT cite any sources that would require a reference. It should also not include equations or illustrations. If you include numerical findings in an abstract, they must be generalized or edited down to the most important results.

Good example: Efficiency values ranged from 56% to 88%.

Bad example: The first test resulted in an efficiency of 65%. The second test showed 88%. The third test showed 65%. The formula used was $Ff = T/r$.

Remember that Abstracts are often distributed at trade shows or conferences, or may be given to management as a basic overview of the research in which the company is involved. Thus, an Abstract cannot refer to any illustrations or equations that appear in the text. Nor should an Abstract include new information that does not appear in the text. It must be a complete paper by itself.

III. SAMPLE ABSTRACT

Below is a sample Abstract for a lab report:

Abstract—This lab experiment tested the validity of Newton's First and Second Laws of Motion by measuring the acceleration of a glider down an inclined air track. The acceleration of the glider due to gravity was measured as a function of glider mass. The motion was calculated with an ultrasonic ranging device. The observed acceleration was $9.8 \pm 0.05 \text{ m/s}^2$, independent of object mass, and consistent with the currently accepted value for the gravitational acceleration at sea level. A study of the relationship between force, mass, and acceleration performed with a gravitationally accelerated object exerting a force on the glider showed a linear relationship between force, mass, and acceleration. This result is consistent with Newton's Second Law of Motion [1 (with edits)].

Note that this Abstract first makes a general statement about the purpose of the experiment and the context in which it was performed. Then it briefly discusses methodology and specific observations. (In a lab report, it may be important to summarize your most important numerical findings in the Abstract, since these were the main purpose for performing the experiment.) In the concluding sentence, the larger significance of the project is noted.

REFERENCES

- [1] University of Pennsylvania. Physics 150 Laboratory Homepage. [Online]. “Sample laboratory report.” Available: http://www.physics.upenn.edu/courses/p150-labs/lab_report.html. January 20, 2007 [date accessed].