

ECSE Final Report

The Writing Center
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Introduction

The format given here is fairly standard for technical reports, though some variations are acceptable. The basic elements of a report (title, abstract, introduction, methods and materials, results, discussion and conclusions, and references) are also standard for articles in many professional journals. If you think you have the makings of a publishable article, read the last section of this handout *before* you write your report.

The writing you've already done for your project—your original proposal and subsequent progress report—may well be of use to you (perhaps with updating) in writing your final report or article. For example, you should be able to adapt your analysis of the problem, review of recent literature, and statement of purpose and approach for the introduction to your report. Furthermore, the criteria for evaluating your work, which you established in your proposal, should serve as a basis for your report's discussion section. Of course, you may want to revise your earlier ideas in light of what you've discovered in the meantime. As you organize your work into the sections described below, remember that you may want additional subsections with headings that help to focus your work.

Bring a double-spaced draft of your final report and at least one subsequent revision to the Writing Center for a critique. You should do this early enough in the semester to allow yourself time to revise your report before handing it in to your project advisor.

Front Matter

Precede the body of your report with a title page, a table of contents, and an abstract.

I. *Title Page*

Your title should be concise, specific, and informative; each word should add meaningful information. Choose words that readers would logically employ as *keywords* if they were searching a database or index to find a paper on this subject. Avoid abbreviations, formulas, and specialized jargon that might unnecessarily limit your audience.

II. *Table of Contents*

Your report should include both a table of contents and a list of the titles and page numbers of any figures you use.

III. *Abstract*

An abstract is a 100-200 word summary of your project that should be understandable in itself, apart from the rest of the report. The purpose of the abstract is to inform your readers of the essential details of your report (or article), thus allowing them to determine whether or not they need or want to read the entire document. A descriptive *abstract* simply describes what the report includes, listing what's covered without giving results or conclusions. Increasingly, however, writers, editors, and readers are promoting *informative*, rather than descriptive, abstracts. An informative abstract encapsulates the most significant points in the report by presenting the problem and purpose, scope, methods (if they are of particular importance), and major results and conclusions.

Write your abstract after you have written the rest of your report. Use the active voice when appropriate to insure that your prose is as vigorous and concise as possible. You might begin the process of condensing your report into an abstract by trying to write a one-sentence summary of each major section of the report. Be sure to set the context for your work by stating the problem that led to the project.

Typically, an informative abstract will concentrate on some combination of results, discussion, and implications. The emphasis may vary, however, depending on your purpose. For example, if your goal was to develop a new method, your abstract should reflect that goal by devoting more space to the discussion of methods. Test your summary by asking people in your field who are not familiar with the details of your project to read the abstract and see if it gives them a useful and accurate summary.

Body of the Report

Divide the body of your report into the sections described below.

I. *Introduction*

The purpose of the introduction is to explain the motivation for your work and to provide the reader with the relevant background information. The introduction should answer the following questions:

What is the purpose of your project?

Why have you done this work: what need or problem does it address? (Briefly review relevant literature; refer to examples or other evidence that helps to show the nature, extent, or significance of the problem you define.)

What are your goals and your approach? Why have you chosen this approach over others?

What are the criteria by which this work is to be judged?

Note: Although the introduction is important, it shouldn't be so extensive that readers become impatient or get lost in an unnecessarily detailed discussion of minor points. Try to distance yourself from your work so that you can select and highlight the most significant points.

II. *Materials and Methods*

What materials, components, and equipment did you use?

What sequence did you follow to reach your goal?

How does your method correspond to your overall purpose?

Why is this method preferred over other reasonable alternatives?

Do not describe false starts and errors. Provide enough information so that someone else familiar with your field could repeat the procedure. Select details carefully so that you neither give too much obvious information nor leave out significant details or important modifications of standard procedures.

III. *Results*

What did you accomplish? If your project resulted in some product, describe that product concisely. You may want to include here (or note its presence in the appendix) a picture, drawing, or specification table.

State your results clearly. Figures, graphs, and tables will help to support your claims, but don't rely on them exclusively to convey information. Express all of your significant results in verbal form. Give a name and number to each figure or table (e.g. Figure 1: Input Frequency and Capacitor Value). Insert the figure or table where you first mention it in your report, and refer to it thereafter by the label you've given it.

IV. *Discussion*

Many technical articles combine discussion and conclusions into one section, explaining why the results happened and what implications they have. In composing your discussion, you might consider the following questions:

Did you accomplish the goals you presented in your proposal and in your introduction?

What results did you expect? What results did you obtain? If there were any discrepancies, how do you account for them? How do your results compare with those obtained in other, similar investigations?

Explain any key decisions you made that affected your approach and results. Why did you choose to proceed as you did? What constraints affected your decisions? Given what you know now, would you do anything differently? What do you recommend?

Do your results (products, devices, programs) have any particular technical or theoretical interest, or any further applicability?

Back Matter

Follow the body of your report with appendices and references.

I. *Appendices*

Present supporting material—such as details of testing procedures, extended calculations, computer documentation, instructions, data tables, side issues, or large figures—in your appendices.

II. *References*

List any sources of information—articles, books, interviews—you've used. Use the citation style indicated by your instructor.

Preparing Your Work for Publication

If you think your project gives you suitable material for a publishable article, you should do some additional planning *before* you write:

1. Ask your project advisor if he or she thinks your work is publishable, and, if so, in what publication.
2. Look at copies of journals that may be possible outlets for your work. Does your article fall within the scope of what a particular journal publishes? Has anything already been published that covers the same ground you cover? Do you think your work is important enough to be published? Is it technically sound?
3. Read editors' comments and requirements, sometimes found in the front sections of journals, along with statements of editorial policy that describe the specific guidelines you should follow for style and format.
4. Solicit readers' comments before you submit your article. Bring a draft to the Writing Center for a critique. When you give your article draft to your advisor to read, explain what your plans for publication, and ask for feedback and recommendations. Carefully consider your advisor's suggestions before submitting your article to a journal. Whenever you submit an article, be sure it's your best work; proofread carefully, and keep a copy. Check editorial policy to see if you should include a self-addressed, stamped envelope (SASE) when you submit your article.
5. If your article is rejected, don't be discouraged; it's rare for an article to be accepted on a first submission. If the editor provides critical feedback, learn what you can from it. The editor may give you the option of making major or minor revisions and then resubmitting your article. If your article is rejected without the option to revise and resubmit, but you still think it has potential, you might make whatever revisions seem appropriate and submit your article to another journal (again consulting the journal itself to be sure it's an appropriate outlet for your work).