

# INSTITUTE WRITING PROGRAM

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## THE WRITING CENTER

### Lab Reports

A lab report formally presents your research findings to someone who needs or is otherwise interested in that information.

#### **Understand the report's purpose and audience**

The central focus of your report is always the data generated in the lab, but how you present that data depends on the purpose and audience of the report. Because your audience wants the report for some specific reason, the intended audience of your report determines the report's purpose. A company executive, a lay reader and a fellow researcher may all be interested in your research, but they are interested in your data for different reasons. Thinking about who will read your report, why they want it and how familiar they are with the technical aspects of your research should guide everything from what level of detail you use to how you define terms and explain effects. If your instructor has not told you to address a specific audience, then you should think of your classmates as fellow researchers and write to them.

#### **The structure of a lab report**

The specific requirements for a lab report vary from instructor to instructor and from lab to lab. You should always follow the guidelines provided by your instructor or your lab, but there are some common features that appear in most lab reports.

##### **Title**

The title of your lab report, like the titles of all scientific papers, should be detailed, specific and informative.

##### **Abstract**

Your abstract should clearly and concisely summarize the important aspects of your entire report, i.e. your purpose, scope, methods, results and conclusions.

##### **Introduction**

Your introduction tells your audience why you ran the experiment, gives important background information about it, and describes relevant hypotheses.

##### **Materials and methods**

This section describes the experiment itself. Your materials and methods section should be detailed enough to allow someone else to duplicate the experiment.

##### **Results**

Your results section presents your data and, as such, it forms the center of your report. If your data is bad or badly presented, then the rest of the report does not matter. Present your data in this section but do not interpret it.



## Discussion

This section interprets your results in light of standing hypotheses, etc. It is typically the longest section of a lab report, and it is often the most important part of a college lab report because it demonstrates that you understand the results and their implications.

## References

You should include full citation information for all reference material. Check with your instructor about what style guide you should use (CSE, APA, etc.).

## Tips for writing your lab report

- Your lab report begins in the lab. While good writing will improve the clarity of your data and make your report more effective, no amount of writing can make up for bad data. Prepare for your lab, run experiments carefully and keep a clear, detailed notebook.
- You probably want to begin writing your report with the Materials and Methods section. Your Title, Abstract and Introduction address the report as a whole, and it can be difficult to know what to include in those sections before you write the Results and Discussion sections. By contrast, the Materials and Methods section is fairly straightforward and should get you started and give you momentum for the rest of the report.
- Get started as soon as you can and give yourself plenty of time to write the report. Even if you take good notes in your lab notebook, you will have a better recollection of your methodology and results if you get started on your report as soon as possible after finishing the lab work. You should allow plenty of time to write a draft, seek feedback from other readers, and revise your report.
- Your prose should be clear, precise and objective. The passive voice can be a useful tool when the agent is unknown or unimportant, but it is often less clear and less concise than the active voice. Pay extra attention to writing clear, concise sentences when using the passive voice. Avoid jargon, use abbreviations judiciously, and keep it simple. For more on using the passive voice, see the “Passive and Active Voice” handout.
- When appropriate, design and incorporate tables and figures. Different types of data benefit from different types of representation, so think critically about what visual aids will work best for your data. Tables, charts and graphs should clearly and honestly present your data.
- Apart from illustrating the results of your experiment for your readers, visual aids can also reveal trends and help you interpret your results. You may want to put your results into tables or figures before writing your Discussion section.
- Make use of style guides and manuals. The CSE, ACS, APA and other style manuals include more than guidelines for formatting your references. They include advice and instructions for how to write clear prose, use numbers and symbols correctly, create and incorporate visual aids, and more.