

## Common Genre Guide: Lab Reports

### What disciplines use lab reports?

Disciplines within the sciences, including biology, chemistry, and physics, are most likely to use lab reports as part of course assignments.

### What is the purpose of writing a lab report?

Scientists write lab reports in order to clearly present and persuasively interpret experimental data to a scientific audience skeptical by nature (Slade & Hess, 2020, p. 18). Lab reports also help ensure that experiments can be done again to test and verify findings.

In a lab report, you have the opportunity to share with readers the following key points:

- what question or hypothesis you were testing and why,
- how you went about setting up your experiment and collecting your data,
- what results you gained, and
- what those results mean.

### What does a lab report look like?

At Cabrini, lab reports are typically formatted in **APA style** and broken down into sections. The sections follow the standard **IMRAD structure for scientific articles**, a structure that mirrors the steps of the scientific method, and is designed to both make the process of peer review easier and to facilitate expert reading practices. In the sciences, scholars and researchers often read in a way that is not linear, but rather “modular,” where readers skip around, seeking specific information in predetermined sections (Sollaci & Pereira, 2004, p. 366).

The IMRAD structure refers to an article or report that has the following headings:

#### **Introduction, Methods, Results, and Discussion.**

**Introduction:** In this section, you want to establish the motivation for your current study or experiment, while also supplying the necessary background so that readers understand what you are trying to learn and why. This may mean simply writing a short introduction that does the following work:

- Explains what problem you are trying to address or understand better
- Defines and explain the key concepts involved in your experiment
- Expresses your purpose in terms of what you hoped to specifically learn, and finally,
- Articulates your hypothesis.

However, writing the introduction could also mean going more in depth in terms of what is already known about your topic. This could involve doing a mini literature review, or a full one, depending on the expectations set for the assignment. For more help with literature reviews, see our handout “Common Genre Guide: Literature Reviews.”

Refer to your prompt or check with your instructor to learn what the expectations are for referencing outside, scholarly sources in your introduction. These expectations may vary depending on the context.

**Methods:** In this section, you describe exactly what you did to conduct your experiment. Be detailed and specific, proceeding in a step-by-step descriptive manner. The goal here is to be so clear that another reader could do your experiment again. This is called “replicability,” or the ability to be repeated, and it means that other scientists could test your hypothesis again and in the same way, to better judge the consistency and validity of your results.

Unless otherwise instructed by your professor, avoid using bulleted lists or sentence fragments in this section. In other words, write out the description of what you did in complete sentences and paragraphs.

It is okay to use the “passive voice” and the past tense in your methods sections. The reason for this is that the passive voice de-emphasizes who is doing the action. This is purposeful in a methods section, where it shouldn’t matter who is doing the action – the outcome should be the same.

To understand what the passive voice is, compare the following sentences.

1. “Label your test tubes 1 and 2.” → This sentence is a command. It may be appropriate for the lab instructions, but not for your lab report.
2. “I used masking tape and a sharpie marker to label two test tubes 1 and 2.” → This sentence is written in active voice and in first person, using “I.” Avoid referring to yourself with “I” or “we,” and don’t refer to your reader as “you.”
3. **“Two test tubes were labeled 1 and 2, using masking tape and a sharpie marker.”** → This sentence is written in passive voice, as shown in the verb phrase “were labeled.” There is no clear indication of who is doing the labeling, just a description that things got labeled and how. This is what you want to aim for in your methods section.

**Results:** In this section, you report on the data you gathered. What did you find? Typically, you should report your findings textually and visually. In other words, you want to write them out in full paragraphs, but you also want to display them in a visual representation, such as a figure or table.

**Discussion:** This section is sometimes called the Conclusion, because it is the last section of your report, prior to your References or any Appendices. This is where you explain whether or not your hypothesis was supported, and you spend some time interpreting your results for your reader. What do all those numbers mean? What can we learn based on this experiment? You also have the opportunity to explain unexpected or surprising results. What might account for them? Finally, you can also indicate limitations of your study, the overall significance of what you learned, and directions for further research on your topic.

For more information, the Writing Center at George Mason University provides a succinct description of the IMRAD structure on [this webpage](#), called “Writing a Scientific Research Report (IMRaD)”.

### **What about APA style?**

If submitting your lab report in APA style, you will want to follow the IMRAD structure described above and include a title page and abstract as well.

A **sample student title page** is included on the next page. A header should be used that includes the page number only (this is a change from the 6<sup>th</sup> edition of APA style).

**An abstract** should be formatted on its own page after the title page and before the introduction. Think of the abstract as a snapshot of your entire report. The purpose of the abstract is to, basically, save expert readers time during their research process. Readers should be able to read the abstract and understand all the major components of the study, thereby helping them decide whether they spend their time reading the entire article or not. Consider writing 1-2 sentences to sum up each section of your lab report (IMRAD).

For more help in writing abstracts, consult [this handout](#) called “Writing An Abstract for Your Research Paper,” available in the Writer’s Handbook from The Writing Center at the University of Wisconsin-Madison, [www.writing.wisc.edu](http://www.writing.wisc.edu).

For more specifics on how to format in-text citations and References, see our handout called “Documenting Sources, APA Style, 7<sup>th</sup> Edition.”

Title of Lab Report

Student Name

Name of Department, Cabrini University

Course Number: Course Name

Instructor's Name

Date of Submission

### References

Slade, D. J. & Hess, S. K. (2020). Show your students how to be more persuasive when they write. *Journal of College Science Teaching* 49(6), 17-22.

Sollaci, L. B., & Pereira, M. (2004). The introduction, methods, results, and discussion (IMRAD) structure: A fifty-year survey. *Journal of the Medical Library Association* 92(3), 364-367.