

Remember: The expectations for a lab report will vary from TA to TA. When in doubt about anything, consult the lab manual or rubric(s), or email the TA!

Title:

The title of a lab report summarizes the experiment. It typically should not be copied directly from the lab manual.

Abstract:

An abstract is a short paragraph (< 200 words) that summarizes the experiment's purpose, major findings, significance, and the conclusion.

- The abstract may also contain a sentence about theory or experimental methods.
- The abstract is written in **past tense**.
- Most undergraduate lab reports do not require an abstract.

Introduction:

The introduction details background information about concepts or theories and provides the hypothesis and predictions for the experiment.

• Background:

- **Reverse triangle format:** Start broad, then focus in on information more relevant to the hypothesis/this experiment.
 - Either summarizes background information from the lab manual, or compiles relevant information from outside sources to be cited in APA style.
 - May also contain information about why the experiment is important. **Will it prove a new theory? Is it economically important?**
 - Written in **present tense**.
- **Hypothesis:** The hypothesis is written in past tense and should use specific wording.
 - **Predictions:** The predictions are also written in past tense and detail what specific experimental outcomes were expected.



Most general

Least general

For example: “It was hypothesized that fertilizer would have a positive impact on the health of *Pisum sativum*. It was predicted that the plants that received fertilizer would have a higher chlorophyll concentration than those that did not receive fertilizer, which would indicate healthier plants.”

Methods:

The methods section details the experimental procedure from the lab.

- Typically in **paragraph format**, though some TAs may accept a bulleted list.
- Should **not** copy directly from the lab manual.
- Any **changes** to the lab procedure or deviations from the procedure in the manual made during the experiment **should be noted**.
- Written in **passive past tense**. This removes the experimenter from the experiment and ensures the procedure reads as something that was already done, rather than something to be done.
 - **Correct:** “Acid was added to the test tube.”
 - **Incorrect:** “I added acid to the test tube,” or, “Next, add acid to the test tube.”
- There should be enough detail for another scientist to replicate the experiment. However, superfluous details, such as sterilizing a workbench, should be omitted.
 - For more examples of superfluous details, see Chapter 5 of *Writing in Biology* (page 86).
 - Generally speaking, if you knew to do it prior to doing the experiment, your reader will know to do it too – assume the audience is familiar with labs.

Results:

The results section consists of two parts: A series of graphs and figures, and paragraph(s) explaining those graphs and figures in words:

- The paragraphs should be written in past tense. Specific figures/tables should be referenced, and the most relevant data should be highlighted.
- The data should be *summarized*, not *interpreted*. Interpretation is saved for the discussion/conclusion section.

Discussion/Conclusion:

This section of a lab report consists of four or five major parts, as follows. It generally follows a triangle format:

- Whether or not the hypothesis was supported.
 - Typically the first sentence of the discussion.
- **Why** the hypothesis was (not) supported.
 - References **specific** data from the experiment to support why (or why not) the hypothesis was supported.
 - *Good: "It was proven that fertilizer helps peas grow taller. Plants given fertilizer grew an average of 10cm taller than those not given fertilizer."*
 - *Not as good: "It was proven that fertilizer helps peas grow. Plants given fertilizer were taller than those not given fertilizer."*
 - Some TAs may ask that this reasoning is then related to other scientific literature.
 - **Do the findings from this experiment support findings from other experiments?**
- Sources of error that impacted the results, and what could be done to fix those errors.
 - For potential sources of error, see chapter 5 of *Writing in Biology* (page 108).
- Suggestions for future experiments.



Least general (conclusion for *this* experiment)

Most general (how this conclusion relates to other real-world data)

General Information:

- Citations and formatting should be done in APA format unless otherwise specified by the TA.
 - Therefore, findings from other scientific papers will often be paraphrased, not directly quoted.
- Information accepted as **true within the discipline** is to be written in present tense.
- Information about the experiment is not widely accepted as **true** and should be written about in past tense.
- When in doubt, consult the lab manual, syllabus, or rubric, or ask the TA.
- **Generally**, the tone of a lab report is formal. Literary devices, rhetorical questions, first-person-POV, and personal pronouns are discouraged.
 - This is done to reduce bias and promote objectivity. A scientist's opinions have no place in the experiment.
- Assume the audience has some familiarity with scientific methods and jargon, but explain any complex concepts relevant to the experiment.
- Binomial species names may be italicized and may be abbreviated after one use:
 - *Alces alces* → *A. alces*

Remember: When in doubt, ASK THE TA! Specific requirements for lab reports change from TA-to-TA, even for the same class! This is meant to serve as a very general guide for what can be a very variable genre of writing.

Looking for more help? Need more details?

- See *Writing in Biology*, available on the UWC bookshelf, for more in-depth information and more examples.
- OR, scan this QR code to see a list of resources for writing lab reports, ranging from more detailed guides and example lab reports to APA citation help and MORE!
 - Code not working? Go to [LINK].
- Remember, the UVM Undergraduate Writing Center isn't just for book reports and English essays -- we help with lab reports too! Book an appointment with us and get outside feedback on your lab report at any time, in-person or online!

