

## Laboratory Report Guidelines

Formal laboratory reports will be required for specified labs. The following guidelines outline the requirements for such reports. The final product should be typed, double-spaced, 1 inch margins, Times New Roman font. Don't forget to put your name and the date(s) of the lab on your report ☺.

### 1. Title & Abstract: (10 pts)

Title your report. This provides a summary of your report. The abstracts will consist of a sentence or two of introduction which includes the objectives of your experiment, a description of the investigation to be conducted, methods, and rationale for the hypothesis you have made.

### 2. Problem: (2 pts.)

This should be a concise description of what you are studying and ideally should be a question that is posed.

### 3. Hypothesis: (5 pts.)

Correctly stated as an **if .. then** statement which ties together the independent and dependent variables in the experiment or investigation

The hypothesis is what you think will happen during the investigation. It differs from a guess in that it is based upon prior knowledge or evidence. It should be supported by previously developed evidence and/or concepts.

\*\* Reminder: The hypothesis should be the statement that drives your laboratory investigation ... and represents your best prediction of the results based on prior experience with the problem.

\*\* Note: Physical Science courses and experiments often combine the problem and hypothesis as a hybrid, but biology and psychology reports usually want a clear statement of the hypothesis when possible in an **if .. then** conditional format.

### 4. Materials: (3 points)

A list of the materials and equipment used in the lab.

### 5. Procedure: (10 points):

Include a listing of the steps for performing the lab. *These must be the steps you actually followed, even if they vary from the given instructions.* Be specific but brief.

Diagram and label the setup of equipment for the lab. State any hazards that may be encountered while doing the lab. The procedure must include an identification of the **independent** and **dependent** variables and the **control(s)** in the experiment at the discretion of the instructor.

\*\* Reminder: A well designed experiment should have one clearly defined independent variable and at least one control.

## **6. Data/Results: (5 points)**

Create a data table as appropriate for all observations and measurements.  
Show the work for any required calculations as well as appropriate units.  
Include a graph of data as appropriate with appropriate titles and labels.

Do not hide or eliminate suspected faulty data but present it. Later, in your CONCLUSIONS, you may explain why you have decided not to use suspected errors in your analysis. Good scientists present the data they obtain even when it is suspected to be faulty ... they explain why they feel they are in error in the discussion of their results later. This is why a true experiment has many trials and much peer review occurs before results are accepted by the scientific community at large.

Include error calculations as appropriate when directed by the instructor.

Data may be qualitative (observational without numbers) or quantitative (with numbers) or both. Often qualitative data may be used to support or explain discrepancies in quantitative data in your conclusion.

## **7. Conclusion/Discussion: (15 points)**

Summarize the important procedures and result(s) of the lab. The conclusion should clearly tie the results of the experiment to the hypothesis and a discussion of why the hypothesis should be accepted or rejected must be completed in detail.

A good conclusion/discussion does not merely restate the results or the procedure ... but it should tie any errors in the procedure to deviations from the expected results.

Explain any uncertainties in the observations/measurements.  
Identify and explain how sources of error influence the lab results. (some sources of error could include equipment/instrument error, procedural setup error, human error, etc.)

Discuss how the lab could be modified to improve the results.

Cite any literature using MLA format as appropriate.

<http://owl.english.purdue.edu/owl/resource/747/1/>

Include answers to additional questions posed by the instructor.