

Lab Report Guidelines

AST 1022L

The lab report to be turned in one week following the completion of each lab is your way of demonstrating that you have understood the purpose of the lab, performed the experiment, and correctly analyzed the results. In addition to answering the questions posed in the lab manual, you will be required to provide all data, graphs, and calculations performed during or after the lab. The lab report must be typed and neatly presented. The suggested structure is as follows:

Introduction: This portion of the lab report outlines the motivation for doing the experiment, in addition to providing some basic background on the subject. You should answer questions such as: What is the experiment about (for example, if it is the impact craters lab, discuss what asteroids are, what meteorites are, evidence for their impacts around the solar system, and so on)? What do we hope to learn from the experiment (impact craters lab example: is there a relationship between impactor size/height/speed and the resulting crater)? You can also discuss any other relevant famous experiments done in the past, if applicable. **Do NOT** just copy the introduction provided in the lab manual, as it is only a very basic introduction. You may include some information presented there, but the idea is to learn more about the topic from outside sources. *Length: Around 2 paragraphs*

Procedure: In this section of the report, you will provide details of what exactly you did during the experiment. Again, do NOT just copy the procedure in the lab report. You should aim for a description detailed enough for someone else to be able to replicate your results. For example, in the impact craters lab, if you measure the crater edge from the outer edge of the rim instead of the inner, make sure you state this. Don't leave anything out, but at the same time don't be unnecessarily detailed (for example, you don't have to say what you did for each trial for every time you repeated it, just say what you did and then say you repeated it some number of times. Also don't include details not relevant to the lab, such as when and how you had to get up and sharpen your pencil). *Length: Between 2-4 paragraphs, depending on the level of detail of the experiment.*

Results and Discussion: Here you will present any results you have obtained, and analyze them. This includes any tables, graphs, or drawings created during the experiment. Many experiments will provide a table for you to enter your data in in the lab manual and graph paper for you to plot your results. Creating typed tables and/or graphs in a program such as Excel is not required, but make sure your data is legible and the plots are neat and easily understandable. If you had to make any calculations to get any numbers in the tables, make sure you state clearly which equation you used (type it out), making sure to define any variables. You will also be required to answer any questions posed in the lab manual. It is not recommended to number the questions and type the answer, like 1. answer 2. answer. Instead, try to incorporate the answer into the report. If a question asks you something about the appearance of a graph, write the answer in a sentence following the graph. *Length: Varies depending on how you choose to present the data tables/graphs. It should be at least a page or two.*

Conclusions: In this section you will be required to summarize what you have learned about the experiment, and any sources of error that you believed had an effect on your result (either human error, such as inconsistent measurement techniques, or errors with the equipment). Comment on what you learned and what, if anything, you would change about the experiment to make it better. *Length: around 1 paragraph*