Union College **Spring 2016**

Astronomy 50: Guidelines for Lab Reports

A lab report should be broken up into clearly marked sections, as follows.

Title, Author byline, data, honor code affirmation: Devote the first half page to the title, date, names of authors, and abstract (see next item) and the Honor Code affirmation "I affirm that I have carried out my academic endeavors with full academic honesty." If a group report, replace "I" with "We" and "my" with "our"

Abstract: In just 3 to 5 sentences summarize the most salient points of the report: the measurement you made, a very brief statement of the method, and the results. If the results involve a quantitative value, it is extremely important to state this value in the abstract. Don't forget to include units.

Introduction: A brief (one or two paragraphs) motivation for the measurement made and why it is relevant. Introduce (and explain) any mathematical equation that you is used in the analysis.

Procedure: Describe for the reader the basic concept of the observation or measurement you made. You should keep a log during your labs and then refer to that log to write your procedure. For the outdoor labs, you should describe the weather and the observing conditions.

If you used a particular piece of equipment, feel free to take a photo and insert the photo as a figure (see rules below about figures). Be sure to refer to the figure in the text.

Do not bother to mention silly, obvious steps, such as the fact that you recorded the measurement on a piece of paper. Do not write your procedure as if you're instructing the reader, and don't list the steps as if this was a cooking recipe. The procedure should be written in the past tense, since you are explaining what you *did*…in the past.

And, DO NOT just copy the lab manual, or say "see the lab manual."

Results and Discussion: First present your raw data and then explain the analysis (if any) that leads to the final result. If you have a list of data to present, it is best to show it in a table. If your analysis involves a graph, be sure to label the axes and call your graph "Figure 1" (if it is the first figure).

If there are points of interest that follow from this result, discuss these issues after presenting the final result. There will often be questions in the lab instructions which you can use to guide your discussion here. Answer these questions in paragraph form, not just as a list out of context – remember that your audience will not have access to the lab instructions you were given. Feel free to elaborate on any other relevant thoughts. Were there any particularly interesting revelations or insights?

To get the right level of explanation and discussion in your report, keep in mind that your lab report is an attempt to explain all the important aspects of what you did and found to other students in Astro50. Remember that the reader does not initially know anything of what you are talking about.

Additional Guidelines:

1. All figures should be labeled as "Figure 1", "Figure 2", … They all should have captions and should be referred to in the text. (Figure 1 shows a plot of …)

2. All tables should be labeled as "Table 1,"….and should be referred to in the text ("Table 1 presents our measurements of…"). Tables can have captions, but these are not essential. Tables must have appropriate column headers, and the units of any quantity should be indicated in the column headers.

You may find the sample lab report helpful.

The entire report should be 2 to 3 pages, single spaced (depending on the complexity of the measurement and the amount of data).

Also, always remember to uphold the academic integrity: *the wording in each report must be original* and must be a reflection of the knowledge and understanding of the author(s). *Any report that has identical wording to another will be considered plagiarized.*