

Sample Data Analysis Lab Write-up Outline (condensed ☺)

1. Raw Data Tables

- Each table should be numbered sequentially, with a descriptive title (describing the contents of the table)
- Copy your table from your Excel file, then paste it into your Word Document.
- After each table of **raw data** please also include a statement explaining how you chose your uncertainties for each of the measured variables.
- Do not let your table lines carry-over onto a new page. If you have to, you must make sure the column headings also follow, and you make a note that you've continued your table from the previous page.

2. Calculated Data Tables

- Each table should be numbered sequentially, continuing from where you left off with raw data tables; remember a descriptive title describing the contents of the table.
- Copy your table from your Excel file, then paste it into your Word Document.
- After each table of **calculated values (processed data)**, you need to show **1 sample calculation per type of calculation**.
 - For example, show 1 sample of how you determined the average of one of your manipulations of one of your variables. Show how you calculated uncertainties, how you calculated volume (of block and also of a cylinder) and how you calculated the uncertainty in the volumes.
 - Use the **Insert**→**Equation** tool in Word. You'll get a clean, easy to read equation. For example, instead of writing $V(\text{cylinder}) = \pi \cdot (d/2)^2 \cdot h$, you would get: $V_{\text{cylinder}} = \pi \left(\frac{d}{2}\right)^2 h$
 - Don't just write the equation—select one of your manipulations and plug in a set of data and actually do the calculation.
 - Do NOT just copy the Excel formula used. Your formal write-up should have no reference to Excel cell identifiers (i.e. =Average(B4:F4) is not the appropriate way to show the work for how to calculate an average of 5 trials).
- Do not let your table lines carry-over onto a new page. If you have to, you must make sure the column headings also follow, and you make a note that you've continued your table from the previous page.

3. Graph

- In LoggerPro, right-click in your graph, and copy it. Paste that into your Word document and the graph will appear as an image right in line with your write-up. Verify that you can read your data and see your lines and points. If you can't, make the image a little bigger (go to the margins if you can), or go back and make the point protectors filled shapes instead of hollow/empty shapes—they'll be darker)
- By the way, in future labs, you'll potentially need multiple graphs—you will always need to have your final graph be a linear fit so you can analyze the slope. This first lab we only need 1 graph total. ☺
- After the graph, please also list your slopes with appropriate units and reasonable sig figs. label which in your list is the maximum slope, the minimum slope, or the average slope.
- Make a statement showing your final slope, with uncertainty, and including proper units
- State what the slope means.

You're now done with the analysis portion of the lab. After this would come a conclusion, but for this first lab we're not doing the conclusion and error analysis. ☺