

## Guidelines

I prefer that you do not use one of these (expensive) science notebooks. Write your name, your student ID, your section, my name, the title of the lab, the due date and the actual handing in date on the cover. If you think that your handwriting is unreadable, please type. In order for me to grade faster and fairer, I have found it to be very useful if the reports are as uniform as possible. Your report should consist of the following 'chapters'.

1. Introduction Describe the goal of the experiment, what is measured? If there are physics equations involved write them down and discuss them. Keep it short, but complete, 70 words or less.
2. Methods Sketch an overview of the set-up and describe each component. Describe the measuring techniques. Do not copy the write-ups. Again keep it short, but complete, 70 words or less.
3. Data/Analysis In case of tables, use the data sheets that I made for you. The acquired data needs to be explained (briefly!) and in case of calculations, the between steps need to be shown.<sup>1</sup> Only if you think that your signed data sheet is clear/neat enough, you can use it directly in your report. If not, then copy the data on a new data sheet and staple the signed data sheet at the end of your report (as a proof of your attendance). Make sure I sign it, because it will be -1 point for no signature. For graphs, use one paper per graph, use the full paper, label the axes with quantities and units (e.g.  $F(N)$ ), use graph paper (preferably millimeter) and do not use programs like EXCEL.
4. Conclusion Do the measurements agree with what is expected from theory? What are possible sources of errors in your experiment? (Explain, not just "friction and human error"). In case of error analysis, is the physical theory verified/falsified? Show whether or not the theoretical value is within the error bars of the experimental value. For example, if you found

$$F_{\text{measured}} = 3.5N ; \Delta F_{\text{measured}} = 0.2N ; F_{\text{theoretical}} = 3.452N , \quad (1)$$

then you have verified the theory since the theoretical value  $F_{\text{theoretical}} = 3.452N$  is within the numerical range

$$3.3N \leq F_{\text{measured}} \leq 3.7N \quad (2)$$

If you are uncomfortable with error propagation read the write-up about error analysis.

5. Questions This should be a separate part of the report. Label them (Q1, Q2, etc). Sometimes questions are such that you might want to pick up a book and do some background reading...

Finally I want to stress that these guidelines are just guidelines and that common sense should be your main guidance.

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<sup>1</sup>in case of a repeated calculation show the between steps only for 1 case.