III. Data Notebooks

Data notebooks are diaries of the work done in the lab. They should contain a record of experimental setup, all parameters used on the equipment and all data taken. Since they are the only source of original data, all notebooks should be neat enough, and contain enough information, that a similarly qualified researcher can reproduce the results from the notebook alone and arrive at conclusions similar to those at which you arrive. The notebook grading rubric is as follows:

a) **Evidence of critical analysis**   ____ / 25 pts
   This includes relevant notes during the experiment and brief analysis of results at the end of each day.

b) **Is Procedure Reproducible?**   ____ / 25 pts
   You should keep your notebook in the form of a journal, with an entry for each day you are in the lab, even if not much happened. You should write your notes assuming that someone is going to repeat your work with the same apparatus. Be sure to note everything that could have affected your results or caused problems.

c) **Is documentation concise?**   ____ / 10 pts
   You don't need to write too much background or details that may not be needed. Write down everything relevant that happens each day, using clear language.

d) **Proper presentation of data**   ____ / 15 pts
   This includes clear presentation of tables, as well as reporting units and error estimates on all data. If you are calculating a quantity or converting measured values to something else, show an example of the full calculation once.

e) **Error Analysis**   ____ / 20 pts
   This includes both physical estimates and quantitative results when applicable. Some experiments will require a propagation of error calculation, and some will rely on physical estimates such as averaging or noting the spread in measurements. If a propagation calculation is needed, you should show the calculation.

f) **Clarity of work**   ____ / 5 pts
   Your work should be legible and well organized. Always use a pen. Never completely eradicate a mistake. Just cross it out so that it is still legible. It may be useful to see what the mistake was, or it may not be a mistake after all.

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