Laboratory report instructions

Note: The first lab report will be due Thursday, October 22.

While the labs are performed in groups, and raw data is to be shared between group members, each person is responsible for performing his/her own data analysis and submitting an individual report. The lab reports will be treated as both technical exercises and as writing assignments. Grading of the reports will be according to the following distribution:

- **Neatness of presentation - 15 pts.** Reports should be neatly (machine) printed, double-spaced, and all figures and plots should be computer-generated where possible. Figures and plots should be clear, well-labeled, and have descriptive captions. Plotted data should also be presented in tables. For clarity, put all data tables, figures, and plots together at the end of the report, after the text. Any deviations from these guidelines will incur deductions.

- **Quality and organization of written presentation - 15 pts.** The reports should cover background and objectives, briefly describe the experiment, present results, and include discussions and conclusions. You are free to organize things under appropriate section headings. The reader should understand the experiment, but not necessarily in enough detail to perform it, from your report. You will also be graded on the quality of writing, including grammar, punctuation, spelling etc. Write clearly, concisely, and preferably in the active voice.

Some important points:

- Do not regurgitate the procedure from the lab handout in your report. Only cover enough about procedure so that your results are understandable. And in discussing the procedure, don’t write as if you’re giving instructions to the reader. The point is to discuss what you did.

- All variable definitions, any measurements you make, and all equations you use should be documented in the report. The reader (and more to the point, the grader) must have enough information to repeat your calculations.

- **Technical accuracy - 40 pts.** This covers the accuracy of any analysis or calculations, as well as the accuracy, reasonableness, and completeness of experimental measurements, and the validity of any qualitative observations.

- **Quality of conclusions - 30 pts.** All results should be thoroughly discussed with regard to their agreement/disagreement with theory and expectations, the possible sources of any disagreement, and the general reliability of the experiments, including sources of error. Any quantitative observations or conclusions should be specifically supported by data. It sounds trivial, but you must draw some conclusions; don’t just present a bunch of data and say “We ran the experiment, here it is.”

Including all tables, figures and plots, keep the reports to no more than 7 pages (double-spaced). This is not that long, particularly once the plots, tables etc. are in place. You can save space, for example, by shrinking plots instead of having each plot take up a whole page. If you can bring it in at fewer pages, and still be complete, all the better. I will look at only the first seven pages you submit, so don’t exceed the limit (for example, don’t include a cover sheet unless the rest of your lab only takes up six pages).

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1I hate the default gray background that some versions of Microsoft Excel put on plots. Besides being ugly and detracting from legibility, it is a waste of ink. If you use Excel, make sure you get rid of the gray background.