

Guide for Lab Reports

Writing mathematics can be nearly as challenging as actually *doing* mathematics. This course will hopefully allow you to do a bit of both, but much of the emphasis in this course will be on the writing. Some important goals to strive for in your lab reports:

Accuracy First and foremost, the mathematics that you are presenting has to be correct. The most eloquent prose explanation cannot counteract a flaw in the mathematical reasoning or a serious calculation error. In short, do it right.

Brevity Get in, say what you have to say, and get out. Von Neumann was once began a letter to a friend by saying ‘I would have written you a shorter letter but I didn’t have time’.

Clarity There are two important ideas to remember here.

Avoid Complication Don’t introduce unnecessary notation or terminology in your arguments. Make sure that everything has a purpose and that what is being presented is essential for the arguments. See also: Brevity

Avoid Oversimplification Find out what your intended audience is supposed to know, and write to their level. This may mean bringing in some background information that might seem trivial to you, but won’t be to the reader. This may seem to fly in the face of brevity (you have to say more than is technically necessary), but it is essential if you want anyone other than your lab partner to admire your write-ups.

The lab documents that you will be receiving from me are mostly a ‘guided discovery’. They contain ‘problems’ and ‘questions’ that are intended to guide your report. Your report should read as a prose document rather than a list of ‘answers’. Where appropriate, you’ll also be asked to include some brief historical background with appropriate citations.

Your reports will be graded on a 50 point scale.

1. *Accuracy (10 points)* Is the mathematics presented correct?
2. *Brevity and Clarity (15 points)* Does the mathematics make sense to its target audience? Is there any extraneous information or any significant parts missing?
3. *Thoroughness (15 points)* Did you answer the questions and problems outlined in the lab assignment?
4. *Style (5 points)* Did you use LaTeX to its optimum capacity? Are your figures and tables neat and in the right place? Is your grammar and spelling all correct?
5. *Extra Touches (5 points)* These points come either by going above and beyond what is asked in the assignment, or by using LaTeX to spice up your report in unexpected and interesting ways.

Partnership: You will be writing your lab reports with partners, a different partner for each of the first three labs (at least). Both constituents of the partnership should be contributing equally to the discovery and to the presentation of the results. You will be asked to submit, via email, a brief evaluation of your and of your partner's perceived contribution to the lab. These evaluations, if consistently low, may lower your final grade on the lab report.

As always, both my door and my email are open to you if you have questions, whether general or specific.