

Project goals and requirements

Goals Broads goals for projects in this course are to

- provide practice communicating technical material in written form;
- challenge you with more difficult problems that may be open ended with a variety of reasonable approaches; and
- provide experience in learning material independently.

All projects will give you practice in the first goal and one or both of the other goals

Requirements Each project will consist of one or more problems. You can work on the details of problems with others. In fact, I encourage you to do so. Get a group of two or three people together, find a blackboard, and go to it.

For each project, you will submit a carefully written report on your results. All of your writing should be done independently even if you have worked on details with others.

For your writing, you should consider the audience to be peers in a multivariate calculus course who have not looked at the particular problem(s) at hand. You should include enough detail so that a reader in this audience can follow your reasoning and reconstruct your work. Your report should be self-contained and not assume that the reader has separately read the problem statement. Provide at least a brief introduction to set up a context and at least a brief conclusion. In your writing, focus on being precise, concise, and clear.

You should write using the style and tips given on the handout “Some notes on writing in mathematics”. When appropriate, you should include carefully drawn figures and plots. Since typesetting mathematics is difficult, you can write projects reports neatly by hand. Another option is to use a word processor and then write mathematical expressions in by hand. You can also use an “equation editor” if one is available in your word processor. For example, in many versions of *Word*, you can go to the **Insert** menu and select **Equation**. Using a word processor gives you the advantage of more easily revising but typesetting mathematical expressions is slow.

Initial writing exercise To get practice and feedback on writing in mathematics, we will do an initial writing exercise. For this exercise, you should write up a vector-based solution to Problem 50 from Section 10.2 using the style and format described above. Include a statement of the problem itself so your report is self-contained. You can think about this as if you were writing a textbook example.

This initial writing exercise is due on Friday, February 11.