Physics 2300, Scientific Computing
Prof. Schroeder
Spring 2018

Final Project Guidelines

For your final project in this course you will design and carry out a project of your choice in computing applied to science. Your project should satisfy the following criteria:

- It should be comparable in size and difficulty to any one of the other scientific projects you've done in this course (Projects 2 through 6).

- It should entail writing at least 200 lines of original computer code. This could be a single new program, or several shorter programs, or a significant enhancement to one or more of the programs you've already written.

- It should explore a scientific question. This could be another topic in the physics of motion, forces, and energy, or a topic from some other branch of physics, or a topic from some other field in the natural sciences (biology, earth science, etc.).

- The project's main goal(s) should be something that you could not feasibly accomplish without a computer. That is, the project should use computation in a nontrivial way.

- You should put significant effort into analysis and interpretation—not merely into the computer code. (A magnificent piece of code is not by itself an acceptable project.)

- The "deliverables" will be one or more original computer programs, a typewritten paper fully describing the project, and a very brief presentation of the project to the class.

- You will carry out your final project individually, not with a lab partner.

At the end of the semester you will have a full three weeks to work on your final project, with no other assignments due for this course. In order to use that time productively, it is important to start thinking about possible final project topics as soon as possible. All topics must be approved by your instructor before you invest any significant time working on them.

You may be able to come up with a great final project topic merely by thinking creatively. Alternatively, feel free to consult textbooks and other sources for ideas. Naturally, you must cite all of your sources, and indicate how you used them, in your paper.

Although you should use the Python language for your coding if possible, you may use other computing languages or environments if you have a good reason to, provided that you obtain your instructor's permission in advance.

Deadlines for choosing a project topic and reaching other project milestones will be announced later.