

## Computation Proficiencies for Physics Majors

You may illustrate your computational proficiency by writing a program (in any programming language) that illustrates the following computational abilities:

1. The ability to write loops
2. The ability to catch an error to prevent a program from crashing
3. The ability to cancel a program prior to its normal conclusion
4. The ability to write and to use a subroutine
5. The ability to use arrays, including addressing specific elements of an array
6. The ability to accept input:
  - a. from a person at a terminal
  - b. from a file
7. The ability to produce output:
  - a. to a person at a terminal
  - b. to a file
8. The ability to draw plots (at least a scatter plot) and to save them in a file that can then be inserted into a document or a presentation
9. The ability to do numerical calculus:
  - a. such as a one dimensional derivative with a numerical estimate of its accuracy
  - b. such as a one dimensional integral with a numerical estimate of its accuracy
10. The ability to do curve fitting (this may include using a standard routine) and to estimate the accuracy of the fitted parameters.