Python for Scientific Computing

a weekly graduate seminar on techniques for scientific programming

instructor: Michael Zingale (michael.zingale@stonybrook.edu)

Python has seen wide adoption in the scientific community for data analysis, simulation, prototyping, and visualization. It provides a simple, yet powerful means to build applications. This seminar introduces python and its use in scientific computing.

- Course format:
  - Weekly 1 hour discussions with interactive examples distributed as IPython notebooks
  - Extensive use of the online discussion forum in Blackboard
  - Students will be encouraged to share their knowledge and issues and contribute to the discussion
  - Grading is based on participation
- Students should bring laptops to class
- **Register for 1 credit only**

- Introductions to:
  - Python
  - Version control with git/github
  - IPython for workflow management
  - The NumPy array package
  - The SciPy tools and basics of numerical methods
  - Matplotlib and MayaVi for visualization
  - SymPy for symbolic mathematics
  - Building applications
  - Interfacing with Fortran/C
  - System operations with python
  - What is Julia?
- Details:
  - PHY 683*, Spring 2015
  - Mondays, 3:00-3:53pm

*Note: despite the word "Astronomy" in the official PHY 683 course name, this is a general scientific programming course