Meeting 1 Lesson Plan

Prerequisites: Have Python 3.x installed and working on your computer. This should be done by downloading and installing the Anaconda package which contains a large variety of third party modules. We will specifically focus on using Python 3.x because this is the latest version of Python and the one which will become the most dominant as time goes on. If possible, the 32-bit version should be used since not all packages support 64-bit. The proper versions can be downloaded from the following links:

- Windows: 32-bit Python 3.4
- Mac: 64-bit Python 3.4 (requires OS X 10.7+)
- Linux: 32-bit Python 3.4 (After downloading, in the shell execute: *bash Anaconda3-2.1.0-Linux-x86.sh*)

Topics Covered:

- Starting and Running Python	*Leader:* Chris	
- IDE vs command line		
- How to use Github	*Leader:* Dylan	
- Programming Etiquette	*Leader:* Dan	Resources: BUPyCon_ConvGuide.pdf
- Commenting		
- Naming variables		
- Docstrings		
- Modules	*Leader:* Chris	
- How to import		
- Standard Procedures and Practices		
- Which modules are useful		
- Data Structures Part 1	*Leader:* Brandon	Resources: List.py, Tuple.py, Set.py, Dict.py,
- Arrays, Lists, Tuples, Dictionaries		Array.py
- Looping and iterating	Leader: Paul	Resources: iterables.py
- For loops		
- While loops		
- Do While loops		
- Break and Continue		
- Iterables		
- Plotting with matplotlib Part 1	*Leader:* Paul	Resources: basic_plotting.py
- Creating basic plots		
- Functions Part 1	*Leader:* Brandon	Resources: Function.py
- Creating Functions		
- Input Parameters		
- Returning Variables		
- Lambda Functions		
- Scope		

  - Pass by reference vs pass by value
  - Recursion
- Debugging *Leader:* Dan Resources: Exceptions.py
  - Exception Handling (Try/Except/Finally/Else statements)
  - pdb module

Collaborative Program: To practice the concepts learned in these lessons we will attempt to create various programs which will employ the use of everything taught in this meeting. For this meeting, the goal was to create an Ulam spiral (http://en.wikipedia.org/wiki/Ulam_spiral) by first finding a way to calculate primes efficiently, then determining a method to properly plot the results. Code which completes this task is given in the programs folder.