Introduction to Python
UC Berkeley Biophysics, Fall 2014

Instructors: Rachel Albert & Mike Schachter

Time and Location: T, Th 4:00-5:30pm, Location TBD

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Overview and Objectives

This course is a one month introduction to the Python programming language. No prior programming experience is required. We will cover the following topics: how to set up your programming environment; how to use variables, data structures, conditional statements, loops, and functions; how to input and output data to and from Python; and an introduction to several useful scientific Python libraries.

Course Outline

Installation and Setup (9/2)

- Course introduction
- Installing Python
- Setting up your environment
- Package management

Homework: Codecademy Intro to Python? (which lesson?)

Source control (9/4)

- Git overview
- Accessing and turning in assignments
- ???

Class project: Forking the class repository?
Homework: Strings tutorial

Input/Output (9/9)

- Command line interface
- IPython & IPython notebook
- Variables (strings and numbers)

Class project: Conditional statements
Homework: Data structures tutorial

Data Structures (9/11)

- Lists
- Tuples
- Sets
- NumPy arrays
- Dictionaries
- List comprehensions
- Indexing
- Slicing

Class project:
Homework: Functions tutorial

Functions (9/16)

- Calling functions
- Writing functions
- Lambdas

Class project:
*Homework: * tutorial*

Name? (9/18)

- File I/O
- Scripts

- Object oriented programming

  Class project:
  *Homework: * tutorial*

Python libraries (9/23)

- NumPy
- SciPy

  Class project:
  *Homework: * tutorial*

Python libraries (cont.) (9/25)

- Pandas
- Matplotlib

  Class project:
  *Homework: * tutorial*