

# 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*