Python Bootcamp for PharmD Students

# Description

The goal of this bootcamp is to teach the introductory Python skills necessary to conduct pharmaceutical bioinformatics & cheminformatics research. This includes basic programming logic, as well as the use of libraries to deal with data frames and to visualize data.

# Course Materials

**Required**

[Complete Python Bootcamp: Go from zero to hero in Python 3](https://www.udemy.com/course/complete-python-bootcamp/)

It should be significantly discounted. This course gives you all of the basic skills needed to program in Python, as well as small projects to put them together.

You also need at least 3 GB available on your hard drive do install Python and Anaconda. We’ll do this together on the first day of the bootcamp.

Additional training documents are [available from ATOM](https://ncihub.org/groups/nihai/training), and these topics will be introduced and discussed over the summer.

We will use **Slack** for discussions and distribution of materials.

**Optional**

For additional practice, [codecombat.com](https://codecombat.com/home) is a game that also teaches Python skills. Sign up for a free account, and make sure the language is set to “Python” when you play.

# Expectations

Students should expect to spend at least 4 hours per day on Python activities, in addition to the daily check-in. The Udemy course is self-paced, but targets for completion will be suggested every day.

The daily check-in will usually be pretty short (around 30 minutes), and will be our time to go through a trickier problem together and to ask questions. Please bring a question every day (can be about a specific problem, or more general).

Don’t give up! Programming can be tough at the beginning. If you’re having trouble with an exercise, spend ~10 minutes trying to figure it out yourself (using course material and Google). Then don’t hesitate to ask questions to me or your teammates on Slack.

# Schedule

|  |  |
| --- | --- |
| **Week 1** |  |
| 5/16 | Introduction & Installation (11 am ET), Start Udemy course  Objects & data structures |
| 5/17 | Comparisons & statements |
| 5/18 | Methods & Functions |
| 5/29 | Mini-project |
| 5/20 | Finish mini-project |
| **Week 2** |  |
| 5/23 | Using Python modules & packages, Intro to pandas |
| 5/24 | Indexing data with pandas |
| 5/25 | Data visualization (matplotlib, pandas, seaborn) |
| 5/26 | Data visualization & statistics |
| 5/27 | Principle Components Analysis |
| **Weeks 3-11** |  |
| 5/30 | Memorial Day |
| 5/31 | Project Introductions |
| June-July | Group Check-Ins  AMPL tutorials from ATOM team  Clinical Research Seminars |
| 7/28 (tentative) | Final Presentations |

There will also be a **daily check-in** every day during the first 2 weeks (11 am).