Centre for Digital Humanities Uppsala
Department of ALM
Uppsala University

Python Programming for
Beginners
Fall 2022

Course summary

The course "Python programming for beginners" is given by the Centre for Digital Humanities Uppsala (CDHU) in the fall 2022. It runs full time (100%) throughout week 49. The instructors of the course are Marie Dubremetz, Matts Lindström, Ekta Vats and Dann Wu.

The course is a five-day, intensive crash course targeted towards both faculty employees and PhD students in the humanities and social sciences who are interested in gaining a basic understanding of programming and some practical knowledge on how to use the Python language. During the course you will also learn how to install and work with JupyterLab which is a modern interactive development environment for "literate coding" where you can seamlessly combine written research notes with code, and data. This flexible interface allows users to process workflows in data science, scientific computing, computational journalism, and machine learning – but it is also suitable for data-driven research within the humanities and social sciences.

The course will take place physically at **campus Engelska Parken, Uppsala University**.

The course will be offered on a first come, first served basis, with priority given to PhD students and faculty members in the Humanities and Social Sciences at Uppsala University. When the course is completed you will receive a certificate of participation.

To register: If you are interested in taking the course, please use this form and feel free to contact matts.lindstrom@abm.uu.se if you have any questions.

Main course goals

The aim of the course is to introduce the basic concepts and skills required for programming using the Python language. The course will also explain how to set up a working Python environment on your own computer. After having completed the course the students will have acquired:

- Basic knowledge of how a programming environment works and the practical ability to set up Python on a computer
- Knowledge about basic Python syntax and basic scripting, including variables, data types and manipulation of data
- Knowledge of Python programming fundamentals including data structures and loops, conditionals and functions

- The ability to work with data in python using Pandas dataframe, including reading and writing files in different formats
- The basic ability to put programming to practice using real world examples

Pedagogical idea

The general idea of the course is to give the attendant a basic understanding of programming and the python programming language, to serve as a platform to keep expanding their skills in Python and learn to use it in their own work. Each day will typically consist of lectures and hands-on lab sessions where the student interacts with the instructors, completes assignments and works on their own in the Python environment. The course requires active participation from the students.

Examination

The course will be examined through continuous evaluation and active participation in the lectures and labs.

Practicalities

To be able to attend the course you will need to bring your own laptop, and make sure the operating system is up to date. Please also download and (preferably) install anaconda using the default settings based on your operating system, following this link: https://www.anaconda.com/products/individual.

Programme

Day 1: Getting started with Python

09.15-11. Finding the command line (Lab 1)

11.15-12. Introduction: What is programming? The fundamentals of code (Lecture).

13.15-15. Setting up the Python environment and JupyterLab on your laptop (Lab 2)

Day 2: Python basics

10.15-12. Basic Python syntax, data types (Lab 3)

13.15-15. Basic scripting: storing values in variables, adding and subtracting. (Lab 4)

Day 3: Python programming fundamentals

10.15-12: Basic data structures and manipulation of data: strings, lists, tuples (Lab 5)

13.15-15: Basic programming: loops, conditionals and functions (Lab 6)

Day 4: Working with Data in Python

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10.15-12: Understanding Pandas dataframe (Lab 7)

13.15-15: Reading and writing files (Lab 8)

Day 5: *Putting programming into practice*

10.15-12: Basic web scraping with Python (Lab 9)

13.15-15: Optical Character Recognition with Python (Lab 10)