Introduction to Python

Learning Objectives

The module is an introduction to the Python programming language. At the end of this module, students should be familiar enough with Python language to read and write non-trivial Python code, as well as to exploit specific Python packages, particularly those related to scientific computing and treatment of economic datasets.

Course Content

The module is an introduction to the Python programming language and mainly deals with the following topics:

1. Introduction to Python language. Variables, structures and functions. I/O of data.
2. Specific packages for analyses and plots: *Numpy, SciPy,* and *Matplotlib.*
3. Dataframes in Python: the *Pandas* package.
4. Data analysis in Pandas: descriptive statistics, regressions, plots and figures from dataframe.

Course Methodology

The course will be held in the computer lab. Students will be taught how to write their own code through concrete examples. Students are encouraged to actively interact in class and will be asked to work on problem sets assigned during the lessons.

Course Materials

Slides for theoretical parts of the lessons will be made available to the students, exercises will be developed using online notebook systems such as colab.research.google.com. All materials will be available online, and students will be encouraged to download it and use it on-the-fly during the course hours.

Reference

• Michael Dawson, *Python Programming for the Absolute Beginner.*
• Allen Downey, *Think Python. How to Think Like a Computer Scientist* (available online for free at greenteapress.com/thinkpython/thinkpython.pdf).
• Wes McKinney, *Python for Data Analysis.*
• Software: Python 3.7 from Anaconda https://www.anaconda.com/distribution/.
Many code examples will be presented during the course.

Course Evaluation

Students will be evaluated (pass/fail) on the basis of group projects that will be individually discussed in detail with each of them. Projects will be assigned during the course.

About the Instructors

Martina Iori is research fellow at University of Turin. She received a PhD in Economics, curriculum Economics and Complexity, at University of Turin and Collegio Carlo Alberto. Her research interests are in the areas of Economics of Innovation and Knowledge, Science of Science, and Energy Economics. She has been visiting scholar at Department of Network and Data Science, Central European University. She holds a Master of Arts in Economics and Complexity at the Collegio Carlo Alberto and a Master's Degree in Theoretical Physics at the University of Turin.