

Python Programming – course outline

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This course provides an introduction to Python, its libraries, and their use in economics and finance research. Students are expected to bring their own laptop in order to experiment with the topics taught and to solve exercises provided during the lectures.

Before the start of the course, enrolled students will be provided with instructions on how to download the necessary software.

Lecture 1: Introduction to Python (3h)

- Object oriented programming – brief introduction
- Data Types: strings, numeric, lists, tuples, dictionaries, sets, Boolean - Immutable vs Mutable Data Types
- Basic operations

Lecture 2: Control flow – modules (3h)

- Conditional statements
- For and while Loops
- Creating functions
- Importing modules/functions
- Importing data from PDF files

Lecture 3: Data analysis (3h)

- Introduction to Numpy and Pandas
- Importing data
- Indexing, slicing, sorting
- Merging datasets
- Visualization with Matplotlib

Lecture 4: Data analysis (3h)

- Introduction to Statsmodel
- Linear regression
- Discrete choice models – marginal effects
- Webscraping

Lecture 5: Textual analysis (3h)

- Working with regular expressions using the RegEx functions
- NLTK Package: text mining and sentiment analysis

Grading

- 10% based on class participation;
- 90% based on a project written in Python. The topic of the project will be chosen by participants, or assigned by the instructor. Projects are expected to be simple applications/extensions of the methods discussed in class, and they should be research oriented.