

Programming Course Outline

1. Introduction to programming
 - Brief explanation of programming
 - Applications in Economics
 - Why python?
 - First program
2. Introduction to python
 - What is python?
 - What are IDEs? Jupyter, Spyder, Notepad
 - Data types and data containers
 - Core of programming "do for loop if condition".
3. More about python
 - built-in functions
 - Pythonic approach to programming.
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4. Math and Numbers plus Algorithms
 - Introduction basic math packages in Python.
 - Some example for math algorithms
 - Some example for non math algorithms
5. Introduction to Object-Oriented-Programming
 - Philosophy of OOP
 - Difference between OOP and functional programming
 - How to program with OOP approach
6. **Optional:** Programming is fun: Making a text based game
It may be useful for understanding OOP and programming itself
7. Introduction to Scientific Python
 - Some talk about scientific python community
Brief explanation of:
 - Numpy
 - Scipy
 - Pandas
 - Matplotlib
 - More packages
8. Deep into scientific python-1: Numpy Matplotlib (*How to beat Matlab with python!*)

- Most useful features of Numpy
 - Plotting in python
9. Deep into scientific python-2: More Numpy Scipy (*How to beat Matlab with python!*)
- More useful features of numpy
 - Some example of simulation(Monte carlo)
 - Introduction to scipy features
10. Deep into scientific python-3: Pandas and Statsmodels (*How to beat Stata with python*)
- Reading data with pandas
 - Main features of Panda
 - some example of data cleaning in Pandas
 - Introduction to Statsmodels.