

# MASTER Economics

## Programming for Big Data, an introduction to Python and SQL

### Description

Part of course.

Code: PA-ME5BEC-BECAV8B

Domain: Law, Economics, Management

### Information

<http://formations.univ-amu.fr>

Department: Faculty of Economics and Management

*Last modification: 23/07/2018*

### CONTENT

This course is aimed at teaching the basics of computer programming, with emphasis on its use in Big Data. Students will first become familiar with database management (relational or not). They will then learn the basics of programming with the computer language Python.

#### Course outline :

Chapter 1 : Relational databases

1. Introduction
2. The relational model
3. Relational algebra
4. SQL Language
5. Entity-Association Schemes

Chapter 2 : Non-relational databases

1. Introduction
2. Parallel Computing
3. Schemas, and non-relational databases
4. MongoDB

Chapter 3 : Introduction to Python

1. Variables et calculs
2. Strings, lists, tuples, dictionnaires
3. If... else conditions
4. Loops
5. Functions
6. Introduction to Numpy
7. Data handling with Pandas
8. Visualization
9. Parallel programming

### PROFESSIONAL SKILLS

- Design and create a relational or non-relational database
- Learn the basics of programming with Python
- Handling data with Python
- Perform parallel processing

### BIBLIOGRAPHY

- Rockoff, L. (2016). The language of SQL. Addison-Wesley Professional.
- Vaish, G. (2013). Getting started with NoSQL. Packt Publishing Ltd.
- VanderPlas, J. (2016). A Whirlwind Tour of Python. O'Reilly Media, Inc.
- Lutz, M. (2013). Learning Python : Powerful Object-Oriented Programming. O'Reilly Media, Inc.

### ORGANISATION

- Sessions alternating theoretical presentations and applications
- The applications will be carried out on computers

### VOLUME OF TEACHINGS

- Lectures: 24 hours

### TRAININGS

#### Master's degree: Economics

- Empirical and theoretical economics
- Economic policy analysis
- Econometrics, big data, statistics
- Quantitative finance and insurance

