



LISBON  
SCHOOL OF  
ECONOMICS &  
MANAGEMENT  
UNIVERSIDADE DE LISBOA

Academic Year: 2020/2021

# **PROGRAMMING AND DATA SCIENCE**



# Apresentação

- Professor
- Learning Objectives
- Program
- Bibliography
- Evaluation rules



# Instructor



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# **Office:**

**Prof. Carlos J. Costa**

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**3<sup>as</sup> feiras – 17:00 às 19:00**



## Course Objectives

**The student should obtain the following skills:**

- Consolidate main programming concepts
- Understand programming techniques to manipulate and visualize data
- Use programming languages to explore data
- Create models supported in data.



# Course Syllabus

- 1. Programming Concepts**
  - 1. Context**
  - 2. Basic concepts and Variables**
  - 3. Data Structures**
  - 4. Programming Fundamentals: Control structures**
  - 5. Text manipulation**
  - 6. Programming Fundamentals: Object Oriented Programming**
  - 7. Important Libraries: Numpy, Pandas**
  - 8. Data visualization**
- 2. Machine Learning**
  - 1. Classification and Regression**
  - 2. Cluster Analysis and Dimensionality reduction**
  - 3. Supervised learning vs Unsupervised learning**
- 3. Data Science**
  - 1. Data Science Process**
  - 2. Planning and assigning roles in data science Process**
  - 3. Understanding business and data**
  - 4. Wrangling Data**
  - 5. Modeling and Visualization**
  - 6. Validating and Deployment and Web**



# Evaluation

- Test: 40%
- Quiz and laboratory work: 20%
- Team Work: 40%



# Deadlines

1. Team registration (10<sup>th</sup> October)
2. Project Statement (13<sup>th</sup> November)
3. Project Submission (13<sup>th</sup> December)
5. Project Presentation (15<sup>th</sup> and 17<sup>th</sup> December)





# Bibliography

Martins J. P. (2015) Programação em PYTHON: Introdução à Programação Utilizando Múltiplos Paradigmas, IST Press.

Albon, C. (2018). *Machine learning with python cookbook: Practical solutions from preprocessing to deep learning*. " O'Reilly Media, Inc."

