



PRESENTACIÓN

Breve descripción: Programming II is presented as an introduction to programming with Python, through analysis of real data as well as a graphical visualization. It does not require any prior knowledge of computer science or programming, just a certain familiarity with spreadsheets.

- **Titulación:** ADEb, ECOb.
- **Módulo/Materia:** Módulo 7. Materias optativas. Materia 7.2: optativas específicas
- **ECTS:** 3
- **Curso, semestre:** 4-ECOb, 4-ADEb, 4-ADE, 2-Gr.ADE+Dat.A b., 2-Gr.Eco+Data A.b, 2-Gr.Eco+Int.Ec.b. Second Semester
- **Carácter:** Optional (Mandatory for students of Data Analytics and International Economics and Finance)
- **Profesorado:** D. Ignacio Rodríguez Carreño, irodriguez@unav.es
- **Idioma:** English
- **Aula, Horario:** Fridays from 10:00 to 12:00 h. Computers Lab S560.

COMPETENCIAS

SSOP1: Accessing and managing massive data.

SSOP2: Understanding programming languages potentially used to solve economic and/or business problems.

SSOP3: Working with visual elements that provide insights and an understanding into complex concepts and components of economic and/or business problems.

SSOP4: Identify patterns and trends and gather useful information from massive data in economics and/or business.

SSOP5. Effective communication of results to a professional audience in economics and/or business

PROGRAMA

The program of the subject is as follows:

1. Data Types and Variables
2. Lists
3. Conditional Statements and For loops
4. While Loops, Inputs and Files



5. Dictionaries
6. Functions
7. Library NumPy
8. Library Pandas
9. Visualization

ACTIVIDADES FORMATIVAS

Classes in person: every week we will be having sessions of two hours in which theoretical contents will be explained with relevant examples with codes and exercises to solve.

Middle exam in Python: There will be one written exam to formulate programming codes in Python.

Individual assignments: Usually each student will have to do a weekly assignment.

Final exam in Python: There will be a final exam to formulate programming codes in Python.

Personal work/study: dedicated mainly to develop algorithms in Python.

EVALUACIÓN

ORDINARY EVALUATION

Attendance (10%): due to the practical focus of the subject, students will have to be in the 80% of the classes to get a 10% of the grade.

Middle exam (10%): There will be one written exam to formulate programming codes in Python.

Individual assignments (30%): Usually each student will have to do a weekly assignment of programming in Python

Final exam (50%): The students will have to make a final written exam of programming questions in python. Students will have to have a 5 out of 10 in the exam to average it with the other grades.

EXTRAORDINARY EVALUATION

Individual assignments (50%): Students will have to present the individual assignments that they did not pass.

Final exam (50%): The students will have to make a final written exam of programming questions in python. Students will have to have a 5 out of 10 in the exam to average it with the other grades.

HORARIOS DE ATENCIÓN



Universidad de Navarra

- D. Ignacio Rodríguez Carreño, irodriguez@unav.es (Office 2080. Amigos Building. Second floor, corridor).
- Wednesdays from 9:00 to 11:00 h.

BIBLIOGRAFÍA

McKinney, W. (2017). Python for data analysis: Data wrangling with Pandas, [Find it in the library](#).

NumPy, and IPython (2nd ed.). " O'Reilly Media, Inc.". Find it in the library

Eric, M. (2019). Python Crash Course: A Hands-On, Project-Based Introduction to. [Find it in the library](#).

Programming (2nd ed.). No Starch Press.

Sweigart, A. (2019). Automate the boring stuff with Python: practical programming for total beginners (2nd ed.). No Starch Press. [Find it in the library](#).

Lubanovic, B. (2019). Introducing Python: Modern Computing in Simple Packages [Find it in the library](#).

(2nd ed.). " O'Reilly Media, Inc.".