Universidad
de Navarra

Programming II
Guía docente 2025-26

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. Andrea Celico, acelico@external.unav.es
- **Idioma**: English
- **Aula, Horario**: Wednesdays from 19 to 21 h. Aula 04
- **Office hours**: online, by appointment
- **Final exam date**: 08/05/25 at 15:30 h. - Aula 11

RESULTADOS DE APRENDIZAJE (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

Lectures: 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.

Group Exercises: At the end of each lecture, students should hand in their solutions to exercises (in group).

Group assignment: Students will be organized in small groups to solve a real-world data project .

Final exam in Python: There will be a final exam to formulate and explain programmimg codes in Python.

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

For further details, see the document "Syllabus" in the contents section

EVALUACIÓN

Evaluation criteria are described in the "Syllbus_25.pdf" file.

HORARIOS DE ATENCIÓN

- D. Andrea Celico, acelico@external.unav.es (by appointment).

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.

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