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

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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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