UAB
Universitat Autònoma de Barcelona

Introduction to Programming

Code: 104850
ECTS Credits: 6

2025/2026

Degree	Type	Year
Applied Statistics	FB	1

Contact

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Teachers

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

None

Objectives and Contextualisation

Learn to develop a computer program.

Create and design computer algorithms that allow the resolution of problems with structured programming.

Use the Python programming language as the language used to develop the exercises.

Learning Outcomes

1. CM02 (Competence) Solve problems using structured programming, designing suitable algorithms.
2. CM04 (Competence) Programme algorithmic solutions to solve problems within a context linked to statistics.
3. KM05 (Knowledge) Recognise typical structures of advanced programming languages (variables, loops, arrays, lists, dictionaries, tuples, etc.), functions and classes.

Content

1. Introduction: variables, instructions, data types and algorithms
2. Conditionals and operators
3. Loops
4. Unidimensional and n-dimensional arrays: lists, dictionaries, sets and tuples in Python
5. Functions and their parameters
6. Files
7. Classes
8. Design and development of an application

Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures of problems	15	0.6	
Lectures of theory	15	0.6	
Type: Supervised			
Lectures of practices	30	1.2	
Type: Autonomous			
Personal work	77	3.08	

Each theory session will have its practical session, where the students will be proposed to apply the concepts learnt developing some computer programs in Python.

The student will be provided of some notes with solved exercises that will help him/her follow the syllabus every week.

The proposed teaching methodology may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Mid-Term exam	45%	3.5	0.14	CM02, CM04, KM05

Midterm practical assignment	10%	1	0.04	CM02, CM04, KM05
Resit exam	100%	5	0.2	CM02, CM04, KM05
Second Exam	45%	3.5	0.14	CM02, CM04, KM05

The evaluation is calculated as follows:

- A midterm practical assignment.
- Two midterm exams: one in the middle of the course and the other at the end.
- To pass the subject by midterms, you must have a grade ≥ 5 between the 2 midterm exams and the midterm practical assignment, applying the corresponding weight to each grade.

If the subject is not passed by midterms, you will be able to take a retake exam. In this case, the final grade of the subject will be exclusively the grade of the retake exam.

Those who have not passed the subject in midterms and have to go to the retake exam, will not be able to obtain more than a 7 as a final grade.

The grade of the midterm practical assignment can take a avlue between -10 and 10. The midterm practical assignment may be verified by the teaching staff via a personal interview to verify that the activity has been developed by the student individually and that he/she has the knowledge to develop it individually without any help. If it is detected that this is not the case (examples: exercise copied from someone, copied from the internet, etc.), their grade may be negative, counting negatively on the final grade. If this activity is not submitted by the student, it will have a grade of 0.

The grade of the midterm practical assignment does not apply to the retake exam.

The midterm exams are written and the retake exam is developed on a PC, unless the university cannot have the appropriate facilities.

The grade of Not assessable will be considered in case someone has not taken any exam.

Single assessment

Students who have accepted the single assessment modalitywill have to take a final exam whichwill consist of a written exam where they will have to solve some programming exercises, as in the usual exams of the subject.

The student's grade will be the exam grade.

If the exam grade does not reach 5, the student has another opportunity to pass the subject through the computer-based resit exam that will be held on the date set by the coordinator of the degree. In this resit exam, the student will not be able to obtain more than a 7 as the final grade.

Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

Bibliography

- Mark Lutz, "Learning Python", Ed. O'Reilly

-"Python tutorial", https://www.tutorialspoint.com/python/

Software

Visual Studio Code: https://code.visualstudio.com/download

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PLAB) Practical laboratories	1	Catalan	second semester	afternoon
(PLAB) Practical laboratories	2	Catalan	second semester	afternoon
(SEM) Seminars	1	Catalan	second semester	afternoon
(SEM) Seminars	2	Catalan	second semester	afternoon
(TE) Theory	1	Catalan	second semester	afternoon