Universitat Autònoma de Barcelona

2022/2023

Introduction to Programming

Code: 104850
ECTS Credits: 6

Degree	Type	Year	Semester
2503852 Applied Statistics	FB	1	2

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

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.

Competences

- Make efficient use of the literature and digital resources to obtain information.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
- Use quality criteria to critically assess the work done.
- Use software for statistical analysis, numerical and symbolic analysis, graphic visualisation, optimisation or others, to solve problems.

Learning Outcomes

1. Critically assess the work done on the basis of quality criteria.
2. Make effective use of references and electronic resources to obtain information.
3. Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
4. Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
5. Use Functional Programming.

Content

1. Introduction: variables, instructions, data types and algorithms
2. Conditionals and operators
3. Loops
4. Unidimensional and n-dimensional arrays: lists, dictionaries 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.*

Methodology

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.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures of problems	15	0.6	1, 3, 5
Lectures of theory	15	0.6	1, 3, 5
Type: Supervised			
Lectures of practices	30	1.2	1, 3, 2, 5
Type: Autonomous			
Personal work	77	3.08	1, 3, 2, 5

Assessment

The assessment is done through two partial exams: a mid-term exam and another at the end. To pass the subject, an average of 5 of the two exams must be taken.

If the subject is not passed, you can go to a resit exam.

Whoever has not passed the subject by partial exams and has to go to the resit exam, will not be able to obtain more than a 7 as a final grade.

Both Mid-Term and Second exams are written. Resit exam is done with a computer.

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

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Mid-Term exam	50%	4	0.16	1, 4, 3, 2, 5
Resit exam	100%	5	0.2	1, 4, 3, 2, 5
Second Exam	50%	4	0.16	1, 4, 3, 2, 5

Bibliography

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

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

Software

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