Syllabus
Course description

Course title	Computer Programming
Course code	47053 B
Scientific sector	INF/01
Degree	Environmental Management of Mountain Areas
Semester	I
Year	I
Academic year	2023/2024
Credits	3
Modular	yes

Total lecturing hours	15
Total lab hours	
Total exercise hours	15
Attendance	Not required, but strongly suggested
Prerequisites	Familiarity with Computer
Course page	https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/master-environmental-management-mountain-areas/course-offering/

Specific educational objectives	The course aims to teach computer programming from a scientific point of view. Given the diverse prior training of the students, who usually have no computer programming knowledge, the course focuses on scripting languages, in order to ease the steepness of the initial learning curve. The course has a strong practical focus and as such students should consider to attend to class in presence, for better interaction and discussion of the contents as well as the chosen techniques.
	The course introduces the student to the general purpose scripting language Python. This language is mandatory knowledge for the courses of Applied Statistics and Advanced Geomatics.
	At the end of the course, students will be able to: - write simple scripts in Python; - parse complex data structures or files and create simple statistics to investigate datasets; - produce reports and charts about the data analysed; - create simple scientific algorithms.

Lecturer	Dr. Andrea Menapace, UNIBZ-C 5.01, andrea.menapace@unibz.it
Scientific sector of the lecturer	ICAR/01
Teaching language	English
Office hours	See Timetable on unibz web page
Teaching assistant (if any)	Daniele Dalla Torre, UNIBZ-C 5.16, Daniele.DallaTorre@student.unibz.it
Office hours	Appointment by email
List of topics covered	- Base of computer programming - Introduction to Jupyter Notebooks - Introduction to Python - Algorithms with Python - Data parsing and plotting
Teaching format	Lectures, programming exercises, face-to-face coaching and mentoring.

Learning outcomes	Skills to deal with different scientific issues through computer programming. A set of tools that can be applied in any scientific domain to analyse datasets of the most diverse type. The knowledge foundations to implement tailored computer programs and extend applications like GIS, CAD or Spreadsheet software.

Assessment	Continuous assessment by regular written tests and assignments throughout the course. Final exam on a scripting task carried out in groups (2 persons).
Assessment language	English
Evaluation criteria and criteria for awarding marks	Final mark is a sum of marks from regular tests and assignments and a final exam. Specifically, the continuous assignment will be worth 80% and the final exam 20% of the final grade. The final grade for the entire course "Applied statistics and computer programming for environmental modelling" will be calculated as the average of the final grades obtained in this module and the one of Applied Statistics.

Required readings	Teacher's documentation and Python scripts in the

	electronic reserve collection.
	Matthes, Eric. Python crash course: A hands-on, project-based introduction to programming (2023). No Starch Press. ISBN 1-4920-7126-9
Supplementary readings	Additional teacher's material