



Programme of Course "Programming For Data Science"

- Code: DT0336
- Type of course unit: Compulsory (Master Degree in Applied Data Science curriculum Data for Smart City), Compulsory (Master Degree in Applied Data Science curriculum Data for Life Science)
- Level of course unit: Postgraduate Degrees
- Semester: 1

Number of ects credits: (Master Degree in Applied Data Science) 6 (workload 150 hours)

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1	Course objectives	
2	Course content and learning outcomes (dublin descriptors)	<p>Topics of the module include:</p> <ul style="list-style-type: none"> • Introductory concepts of computer science: introduction to architectures (hardware, software), operating systems, logic computation, algorithm and complexity. • Syntax and semantics: definitions and examples in Python. Basic python elements: expressions, variables, assignments, numeric types and strings. Control commands. • Functions, scope of variables and abstraction. Recursion, file management. • Python Structured types: lists, sequences, tuples, dictionaries. Testing and debugging, Exceptions and assertions. • Object-oriented Paradigm: Python classes and objects. Data plotting with Matplotlib • Complexity. Simple algorithms on data structures. knapsack problem. Dynamic programming.
3	Course prerequisites	
4	Teaching methods and language	<p>Language: English</p> <p>Reference textbooks</p> <ul style="list-style-type: none"> • John V. Guttag, <i>Introduction to Computation and Programming Using Python. Revised and expanded Edition</i>. MIT Press. 2013.
5	Assessment methods	