Syllabus

Course Description

Course Title	Capstone Project
Course Code	73019
Course Title Additional	
Scientific-Disciplinary Sector	IINF-05/A
Language	English
Degree Course	Master in Computing for Data Science
Other Degree Courses (Loaned)	
Lecturers	Prof. Davide Lanti, Davide.Lanti@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/34107
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	6
Teaching Hours	12
Lab Hours	0
Individual Study Hours	138
Planned Office Hours	18
Contents Summary	Individual or group project based on real data from a specific application domain in areas such as bioinformatics, internet of things, business information systems, tourism, agriculture.
Course Topics	The course belongs to the type "affini o integrative – formazione affine" in the curricula “Data Analytics” and “Data Management”. Data science cannot be taught only on a theoretical level. Students must apply and test their skills on real data, interacting with domain experts. To this end, the students carry out a project on real data taken from concrete application domains, such as

	bioinformatics, sensors, Internet of things, business information systems, tourism and agriculture. The goals is to acquire professional skills while applying the techniques studied throughout the Masters program. The project is carried out individually or in groups, autonomously under the joint supervision of a professor and one or more domain experts. Individual or group project based on real data from a specific application domain in areas such as bioinformatics, internet of things, business information systems, tourism, agriculture.
Keywords	Data Science, Real-World Data Projects
Recommended Prerequisites	
Propaedeutic Courses	
Teaching Format	Individual or group project.
Mandatory Attendance	Attendance of project presentations at the beginning of the course is not compulsory.
Specific Educational Objectives and Learning Outcomes	The course belongs to the type "affini o integrative – formazione affine" in the curricula “Data Analytics” and “Data Management”. Data science cannot be taught only on a theoretical level. Students must apply and test their skills on real data, interacting with domain experts. To this end, the students carry out a project on real data taken from concrete application domains, such as bioinformatics, sensors, Internet of things, business information systems, tourism and agriculture. The goals is to acquire professional skills while applying the techniques studied throughout the Masters program. The project is carried out individually or in groups, autonomously under the joint supervision of a professor and one or more domain experts. Applying knowledge and understanding: - D2.1 - Practical application and evaluation of tools and techniques in the field of data science - D2.2 - Ability to address and solve a problem using scientific methods - D2.3 - Ability to analyse, explore and evaluate a data set in specific application domains

	Making judgments - D3.1 - Ability to plan and, if necessary, re-plan a technical project activity for the analysis and management of data, or for the implementation of corresponding software systems or applications, and to complete it within the defined deadlines - D3.2 - Ability to autonomously select the documentation (in the form of books, web, magazines, etc.) needed to keep up to date in a given sector - D3.3 - Ability to identify reasonable work goals and estimate the resources needed to achieve these goals. Communication skills - D4.1 - Ability to use English at an advanced level with particular reference to disciplinary terminology - D4.2 - Ability to present one's work in a clear and comprehensible way in front of an audience, including non-specialists - D4.3 - Ability to structure and draft scientific and technical documentation - D4.4 - Ability to coordinate the work of a project team and interact positively with team members - D4.5 - Ability to interact and collaborate in the implementation of a project or research with peers and experts Learning skills - D5.1 - Ability to autonomously extend the knowledge acquired during the course of study - D5.2 - Ability to autonomously keep oneself up to date with the developments of the most important areas of data science - D5.3 - Ability to deal with problems in a systematic and creative way and to appropriate problem solving techniques
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Project work, carried out individually or in groups, evaluated on the basis of the practical application of data science tools and methods (D2), project planning and judgment (D3), communication and teamwork (D4), and autonomous learning and problem-solving ability (D5). The project must be complemented by a written report and validated through a brief oral presentation.

Evaluation Criteria	The exam is pass/fail, and is evaluated on the following criteria: - Creativity, skills in critical thinking, ability to apply known and new techniques to real-world problems - Clarity of presentation
Required Readings	- Additional readings and resources will be recommended on a project-specific basis.
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	Industry, innovation and infrastructure, Quality education