Syllabus

Course Description

Course Title	Information Systems and Data Management
Course Code	27269
Course Title Additional	
Scientific-Disciplinary Sector	IINF-05/A
Language	English
Degree Course	Bachelor in Economics, Politics and Ethics
Other Degree Courses (Loaned)	
Lecturers	Dott. Mag. Andrea Molinari, Andrea.Molinari@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/3420
Teaching Assistant	Dr. Gery Andres Diaz Rubio
Semester	Second semester
Course Year/s	1
CP	2
Teaching Hours	20
Lab Hours	20
Individual Study Hours	-
Planned Office Hours	6
Contents Summary	The course introduces the fundamental concepts of data management and information systems, with a focus on applications in the business context. Students will learn the basics of data organisation and storage, the structure of relational databases and the functioning of business information systems. Practical tools for data management and analysis will also be presented, including spreadsheets, database query languages (SQL), and software for data visualisation and management.
Course Topics	• Data, Information and Knowledge • Why Data/Information Management is so important today

	• How computers represent numbers, text, images / colors, sound/music and video • Information systems: concepts, definition and main tasks • Information Systems and Strategic Management • ICT productivity paradox • Information Systems: classification • Issues with Managing the IS Infrastructure • Type of data • DMS • Data analysis and Business Intelligence • DataWarehouse, OLAP tools and Data Mining • Relational databases • Querying Databases using SQL language • SQL – selection queries • SQL – aggregation queries • SQL – Set operations • SQL – Sub Queries • SQL – Outer Joins
Keywords	Information Systems, Data Management, Data analysis, SQL language
Recommended Prerequisites	- basic in computer programming - basic in statistics
Propaedeutic Courses	None
Teaching Format	Front-of-class teaching in standard classroom, Front-of-class teaching in computer lab with examples and exercises assigned in class, interactive exercises in standard classroom and in computer room held by teaching assistant.
Mandatory Attendance	Suggested, but not required; for non-attending students additional study material will be provided on the course's website on OLE
Specific Educational Objectives and Learning Outcomes	ILO (Intended Learning Outcomes) ILO 1 Knowledge and understanding: ILO 1.1 basic knowledge of data management and computer programming for statistical and econometric analysis of socio-economic data; ILO 1.2 knowledge of the technical vocabulary of the subjects of this learning area;

	ILO 2 Ability to apply knowledge and understanding: ILO 2.1 ability to manage simple databases and carry out analysis of socio-economic data with the support of software; ILO 3 Making judgements ILO 3.1 Acquisition of the ability to make judgements and of the methodological tools useful for the critical analysis of data, sources, assumptions and implications of scientific practice, of the political, ethical and legal context within which economic phenomena are set and with which they interact ILO 4 Communication skills: ILO 4.1 Proficiency (oral and written) in Italian, German and English, including translation between these languages. Intercultural competence. Conceptual awareness, synthesis and written expression, in particular in the drafting of scientific or science-based documents ILO 5 Learning skills: ILO 5.1. Promotion of critical thinking and analytical skills that enable one to focus on complex problems in their long-term dynamics and in the variety of their implications, including ethical ones
Specific Educational Objectives and Learning Outcomes (additional info.)	Knowledge of data management tools and technologies
Assessment	Assessment is based on a written examination evaluating students' knowledge and understanding of data management and data analysis concepts (ILO 1.1, ILO 1.2), their ability to apply knowledge to basic database management and data analysis tasks (ILO 2.1), and their capacity to critically evaluate data, methods, and contextual implications (ILO 3.1). The written format also assesses communication skills in English and the appropriate use of technical terminology (ILO 4.1), as well as critical thinking and learning skills through integrated and reflective questions (ILO

	5.1). Practical test to assess the organisation, management and editing of data using SQL.
Evaluation Criteria	The grade is the weighted average of the evaluation of the theoretical part (40%) and the practical part (60%), with emphasis on optimal, efficient and extensible solutions. There is no difference in the assessment between attending and non-attending students. Both parts (theory and laboratory) must be passed.
Required Readings	None
Supplementary Readings	None
Further Information	None
Sustainable Development Goals (SDGs)	Sustainable cities and communities, Industry, innovation and infrastructure