



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Information System

2324-3-E4102B065

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#### Learning objectives

The course aims to create the necessary knowledge, under the technical and methodological point of view, to enable a correct approach to the design of an information system, as a key strategic resource to achieve the goals of a business organization.

##### *Knowledge and understanding*

This course will provide knowledge and understanding in relation to:

- Design of information systems for data analysis and decision support
- Identification of data sources of an enterprise information system
- Management of structured and unstructured data

##### *Ability to apply knowledge and understanding*

At the end of the course the students will be able to:

- Use software for analyzing structured and unstructured data
- Use software for representing data
- Interpret data analysis results to support decision-making

The course allows the student to acquire a solid foundation on the theory of information systems and in the application of knowledge management and data analysis techniques to be used in the biostatistic / statistical / demographic context.

#### Contents

- Application architectures and technological architectures of information systems
- Digital applications and analysis of information system
- Design of information system for data analysis and decision support system
- Data quality
- Information systems and social media
- Introduction to Social Media Analytics
- Big Data and techniques for processing unstructured data
- Text Mining and Text Analytics

## Detailed program

Application architectures and technological architectures of information systems:

- Database management processes
- Distributed architectures, client server, network, Internet and World Wide Web
- Digital applications and analysis of information system:
- The application portfolio in the industrial and service companies
- CRM
- Design of information system for data analysis and decision support system:
- Design of processes and data modelling
- BPR
- Activities and information analysis
- Data quality
- Information systems and social media:
- Evolution of enterprise information systems
- Social Media Marketing
- Introduction to Social Media Analytics:
- Sentiment Analysis
- Big Data and techniques for processing unstructured data:
- Text Mining and Text Analytics

## Prerequisites

Fairly good skills in learning, writing and speaking are expected, together with a general knowledge about the main technologies and applications of Computer Science. Knowledge of the Office package.

## Teaching methods

The course is delivered in Italian and includes lectures in the classroom and laboratory exercises. The lectures cover 6 CFU of the course, the exercises cover the remaining 3 CFU. In the lectures the theoretical topics of the course are explained, some project works are also assigned to the students to be carried out in groups and discussed by the end of the course.

The lab exercises are aimed at teaching and using unstructured data processing software, in particular for performing Text Mining operations on data scraped from various Web sources. Also during the exercises, project works are assigned to the students to be realized in group and discussed by the end of the exercises.

## **Assessment methods**

The verification method is based on a written test with optional oral (for those who have obtained an evaluation of at least 18/30 in the written test).

The written test takes place at the computer and it consists of 3 open (short essays) and 10 closed questions with multiple answers. Open questions aim to evaluate the reasoning and critical discussion skills of a topic. The closed questions aim to evaluate the preparation on all the topics of the course. Open questions have a greater weight in the calculation of the final grade.

The oral exam is a discussion aimed at assessing the theoretical knowledge of the student on the topics of the course. The ability to reason and deepen the issues proposed during the examination and the methodological rigor of their development will be evaluated.

The evaluation is focused on the student's ability to answer to specific questions by referring both to the theoretical and practical aspects (through examples) connected to the requested topic.

The test is common for both attending students and non-attending students.

There are no intermediate tests. During the course, students are invited to carry out a project in a group, it is not mandatory, whoever completes it will have a few more points in the exam. Non-attending students can freely choose whether to carry out the project or not.

## **Textbooks and Reading Materials**

1) G. Bracchi, C. Francalanci, G. Motta. Sistemi informativi d'impresa. McGraw-Hill, 2010.

2) V. Cosenza, "Social media ROI", Apogeo, 2012, ebook available on internet, chapters: 1, 2, 4, 5 (the basic concepts).

Further material (slides and papers on specific topics) is available on the elearning page of the course.

## **Semester**

The course is delivered in the second cycle of the first semester and in the first cycle of the second semester.

## **Teaching language**

Italian

## **Sustainable Development Goals**

INDUSTRY, INNOVATION AND INFRASTRUCTURE

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