Statistics and Information Management

The Undergraduate Program in Statistics and Information Management aims to provide students with the theoretical knowledge, operational expertise and practical skills to understand and learn from qualitative and quantitative data in the biological, environmental, demographic and social sciences. To this end, the program focuses on the study of statistical methods, including statistical software.

The normal duration of the course is 3 years.

CONTENTS

In the first stage of the program (mainly during the first two years) a solid training in both methodological and applied statistics, mathematics and information science is provided. In the third year students are offered to take courses in those areas with the flexibility to match their particular interests. The opportunity for an internship, resulting in 12 European Credit Transfer and Accumulation System (ECTS), is one among the qualifying features of the program.

The available courses, categorized within areas, are:

Mathematics: Linear algebra; Mathematical Analysis I; Mathematical Analysis II.

Information Science: Computer Science; Computer lab; Databases; Informative Systems.

Statistics: Probability; Statistics I, Statistics I - Complements; Statistics II; Multivariate Statistical Analysis.

Data Analysis: Data Mining and Computational Statistics; Complex Data Analysis; Plan of Experiments; Spatial and Environmental Statistics; Data Science and Statistical Models for Unstructured Data.

Demography: Demography; Social Statistics; Social Demography (Mobility and Migration); Social Demography (Developing countries); Population, Territory and Society I.

Biostatistics: Medical Statistics; Elements of Biostatistics; Epidemiology; Generalized Linear Models in Epidemiology and Medicine.

Lectures are provided only in Italian.

COURSE STRUCTURE AND FINAL EXAM

Students can carry out periods of study at other universities, via UE and extra UE international student mobility programs, according to the Erasmus agreements stipulated by the University of Milano-Bicocca.

Once students have completed the activities, ECTS credits are awarded. The ECTS is a credit system for higher education that allows comparison of study attainments of students across the European Union (in Italy, 1 ECTS credit = 25 work or study hours).

ECTS credits are awarded to students when they successfully complete learning activities, usually as follows:

1. for courses, students must pass a final exam (written, oral, or both written and oral), achieving a mark equal to or higher than 18/30;
2. for internships and practical exercises, students must attend the majority of the course compulsorily (in general 70% of the total time) and must obtain a "pass" grade from the teacher (or from the tutor, or the supervisor);
3. students must complete an extended essay.

The final degree grade depends on:

1. the weighted average of all grades obtained for all the learning activities, weighed by their ECTS credits;
2. the number of honours obtained in the exams of the training activities which provide for the final exam;
3. the regularity of duration of the training course;
4. the quality of the extended essay.

SKILLS

Students who graduate in Statistics and information management can acquire :

- a solid foundation in statistical methods and integrated IT tools;
- knowledge of theoretical statistics and data analysis techniques and their application via the use of statistical packages/languages;
- the ability to analyze economic, social, demographic, and medical problems, and to collect data, apply adequate statistical models, and interpret the results in collaboration with experts from different disciplines;
- the ability to provide data analyses in different fields and address issues related to big data;
- the skills for a career as a data analyst, manager of information systems and databases, statistical consultant, and or a data scientist;
- the skills for opportunities in different types of companies and organizations like market research companies, statistical consultant companies, public and private statistical offices, service companies;
- the fundamentals to enable undertaking different postgraduate studies, especially programs in advanced theoretical and applied statistics.