

Data Analysis and Softwares

Programming knowledge to conduct professional data analysis using R



PROGRAMME
Master 1

SEMESTER
Semester 1

CREDITS
3 ECTS

CONTACT HOURS
21h Lectures, 6h TD

Course Description

This course introduces the core programming techniques essential for modern data analysis. Through hands-on practice with R and its various packages, students will develop the technical proficiency needed to organize, analyze, and interpret complex data structures in a professional environment.

The course focuses on practical applications that mirror real business situations. In their individual project, students tackle data challenges in line with their professional ambitions, which may be used as a showcase piece for future job interviews.

Learning Outcomes

- Recognize a clean data structure and be able to organize a dataset so that it can be exploited.
- Use different visualization tools to provide a clear understanding of the data.
- Perform and interpret a complete statistical analysis, starting from an economic or business problem.
- Write clean code that can be used by coworkers in the workplace.

Indicative Content

- 1. First steps:** Introduction to the R language and its associated environments.
- 2. Cleaning Data:** Techniques for structuring datasets.
- 3. Statistical Analysis:** Using R to apply core statistical analysis.
- 4. Programming with R:** Using R to develop user-defined functions and create dashboards.
- 5. Individual projects:** Applied statistical analysis using a dataset tailored to the individual professional ambitions of the student.

Teaching & Learning Approach

Each session focuses on a learning unit and is divided into two segments. Instruction begins with a lecture format presenting functions and concepts, followed by independent application exercises where students receive personalized feedback.

Assessment

**Home assignment including
R Code, and professionally written report**