UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

## Programming Language Laboratory

**2526-1-E4104B008**

### Learning objectives

This course will introduce the SAS system and R, with a special focus on their programming languages, to allow the student to acquire the necessary knowledge and skills to use SAS and R to analyze data.

Knowledge and understanding

This course will provide the basic knowledge and understanding on:

Managing tabular data in SAS (dataset)
Managing tabular data in R (data frame)
Data analysis in SAS
Ability to apply knowledge and understanding

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

Write basic SAS programs for data analysis
Write basic R programs for data analysis

### Contents

Introduction to SAS

Managing data with SAS

Introduction to R

## Detailed program

Introduction to SAS, Data step e Proc step. import, Proc print

Proc contents, Proc Means, output, maxid

Proc Freq

ODS

Proc Sort, Merge

Proc Format

Introduction to R: syntax and a comparison with SAS

## Prerequisites

None

## Teaching methods

The course is taught in blended e-learning.

There are 6 in-person lectures, each of 1 or 2 hours (7 hours overall), in unidirectional model, to discuss how to tackle and solve some problems. Some videos will provide the necessary notions on SAS and R. Lectures will be neither recorded nor streamed.
There are 6 exercises via e-learning, each of 2 or 3 hourse (total 14 hours) where the acquired knowledge is applied to solve some problems on tabular data.

## Assessment methods

Written exam consisting of writing (at the PC) some short SAS and R programs to solve some problems.
The grading is based on correctness, completeness, simplicity of the proposed solution.

Beware that you must be registered via "segreterie online" to take the exam. If you are not registered, you will not allowed to take the exam. No exceptions will be made.

## Textbooks and Reading Materials

“The Little SAS Book”, SAS Institute

## Semester

Second semester, third cycle

## Teaching language

Italian

## Sustainable Development Goals

QUALITY EDUCATION