



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Time Series Analysis of Environmental Data

2526-1-124R016

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#### **Title**

Time Series Analysis of Environmental Data

#### **Teacher(s)**

Tullia Bonomi and Chiara Zanotti

#### **Language**

Italian/English

#### **Short description**

The aim of the course is to learn the fundamentals of time series analysis for environmental data applications, with a specific focus on water resources quality and availability.

Practical exercises will be carried out in the R environment on groundwater, surface water, and meteorological data.

Lectures and training will cover the main aspects of environmental time series data management, acquisition, visualization, analysis, and modeling:

- Types of environmental data
- R basics
- Explore and visualize time series data, descriptive statistics
- Trend analysis
- Auto and cross-correlation
- Time series decomposition
- Time series cluster analysis

Final Evaluation: the final assessment consists on the application of the learned techniques to a dataset chosen by the participants (personal or open-source dataset)

## **CFU / Hours**

2 CFU - 20 Hours

Chiara Zanotti 16 hours lectures

Tullia Bonomi 4 hours training

## **Teaching period**

II semester

## **Sustainable Development Goals**

QUALITY EDUCATION | CLEAN WATER AND SANITATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE

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