



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Data Science Lab On Smart Cities

2223-2-F9101Q055

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#### Aims

To acquire knowledge related to problems typical of highly urbanized environments, to the methodologies for formalizing these problems, and to the tools for processing geolocated data.

#### Contents

- What is the smart city?
- Learn about the big data generated by the smart city
- The main issues and how data science can help build a more sustainable and livable city
- The challenges ahead

#### Detailed program

What is the smart city? Reference architecture of the smart city.

Key issues:

- Modeling the socio-economic and cultural characteristics of the city's neighborhoods.
- Analysis of city traffic trends and short-term forecasting, identification of problematic zones
- Analysis of parking patterns, short-term forecasting
- Analysis and estimation of electricity demand
- Optimization of city facilities (ambulance allocation, allocation of children to schools)

## **Prerequisites**

Notions of statistics, machine learning, and Python programming language

## **Teaching form**

Lectures, analysis of scientific articles, laboratory

## **Textbook and teaching resource**

Slides and notes provided by lecturers

## **Semester**

Second semester

## **Assessment method**

The examination will consist of two tests:

- questionnaire with open and closed questions to assess knowledge of course topics
- group project with personal assessment to test the ability to deal with practical problems

## **Office hours**

Received by appointment to be arranged by e-mail

## **Sustainable Development Goals**

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