UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Data Science Lab On Smart Cities

2223-2-F9101Q055

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