UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Statistica Spaziale M

2425-2-F8204B010

Learning objectives

The course aims at providing students with a set of methodologies to deal with the estimation and prediction of spatial data.

Contents

Exploratory spatial data analysis; analysis of Spatial point pattern; geostatistics; introduction of spatial lattice data.

Detailed program

Spatial point processes: homegeneous and non homogeneous Poisson process. CSR tests. Parametric estimation of the intensity function of an inhomogeneous Poisson process.

Geostatistics: exploratory spatial data analysis; variogram, covariogam and correlogram; isotropy and some isotropic variogram models; variogram estimation: empirical variogram, parametric modeling of the variogram function: OLS, WLS, GLS and maximum likelihood estimation; simple, ordinary and universal kriging;

Laboratory sessions in R.

Prerequisites

Inferential statistics, stochastic processes and R programming. The course is not suitable for undergraduate students enrolled in the Erasmus Program. Erasmus postgraduate students are invited to contact the teacher at the beginning of the course.

Teaching methods

Class lessons and lab sessions.
There will be a total of six lab lectures, which will be conducted remotely.
The remaining lectures will be held in person.

Assessment methods

****Lab assesment and oral examination .

The overall mark is obtained by averaging the marks obtained in each part.

Textbooks and Reading Materials

O. Schabenberger, C.A. Gotway, 2005, Statistical methods for spatial data analysis Chapman & Hall/CRC.

Additional readings, R-codes, datasets and case studies will be made available through the eLearning web page of the course.

Semester

First term of the second semester.

Teaching language

Italian.

Sustainable Development Goals

QUALITY EDUCATION