Summary
The main objective is to make the students understand the importance of the spatial issues in environmental sciences and engineering, for example for mapping and interpolation. Presentation of different concepts and techniques devoted to spatial data.

Content
• Modeling, analysis and statistics of continuous phenomena (mainly Geostatistics)
• Modeling, analysis and statistics of discrete phenomena
• Classification / regionalization
• Analysis of topographical data
• Exercises and application projects (combining the different components of the course)

Learning Prerequisites
Recommended courses
Basics of Statistics
Basics of GIS

Learning Outcomes
By the end of the course, the student must be able to:
• Expound importance of spatial dimension in the analysis of environmental data
• Apply basic geostatistical tools for structural inference (variogram) and interpolation (kriging)
• Assess / Evaluate the global and local spatial dependence within a spatial dataset (autocorrelation)
• Compute most important landscape and spatial metrics
• Design complex spatial analysis processes

Transversal skills
• Use a work methodology appropriate to the task.

Teaching methods
Ex-cathedra + exercises + project

**Assessment methods**

30 % Two spot written checks during the semester (one for each teacher)
70 % One written exam (in two parts of 90 min each) during the exam session