



KTH Architecture and  
the Built Environment

# Spatial Data Analysis in Practice – SDAP 2025

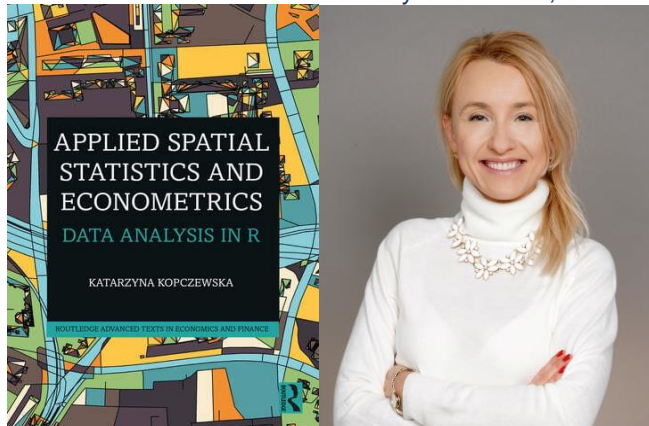
## 7,5 credits

### Motivation

Spatial statistics is a rapidly developing field, which involves the quantitative analysis of spatial data and the statistical modelling of spatial variability. This development has had a huge impact on environmental disciplines but also on socio-economic sciences, such as human geography, economics, spatial planning, epidemiology and criminology. Combined with traditional data sources, data from social media and mobile phones can now be handled in Geographical Information Systems (GIS) to provide better grounds for analysis of patterns and processes over time and space. The KTHs course *Spatial Data Analysis in Practice - SDAP* (course code FAG3170) offers examples of conceptual and applied research on spatial data analysis, capturing some of the most recent developments in this area.

### Special feature in 2025!

**Spatial analysis in R software and an introduction to spatial machine learning with spatial data processing and visualization** with Katarzyna (Kathy) Kopczevska, Associate Professor at the University of Warsaw, Poland.



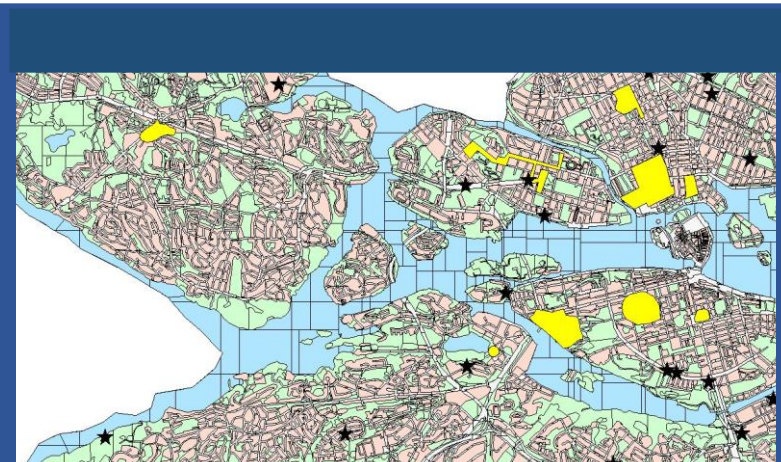
### Learning outcomes

Students are trained to become users of spatial data analysis techniques. Students will gain a broad knowledge of the diversity of current approaches, which methods are at hand, and examples of applications using spatial data analysis in different fields. After completing the course, the students should be able to:

1. Use relevant knowledge to solve spatial-related problems using real-life data sets and spatial statistical tools, including pattern identification, modeling (spatial regression analysis), and visualization.
2. Develop, interpret, and critically reflect upon the results of a case study using one (or more) spatial data analysis technique(s) learned during the course.
3. Use new skills in spatial data techniques and communicate them to an audience (written and oral).

### Head teacher

Vania Ceccato, Professor at the Department of Urban Planning and Environment, KTH Royal Institute of Technology, Stockholm, Sweden.



### Contents and structure

The course is divided into three parts. In the first part, the head teacher introduces the nature of geographical data, followed by techniques for identifying spatial patterns and confirmatory spatial data analysis in GeoDa and other related software. In the second part, Prof Kathy shows how to perform spatial analysis in R software using point, regional, and grid data. She also combines spatial statistics, spatial econometrics, and spatial machine learning with spatial data processing and visualization. Then, we focus on examples of applications and the development of the final project. The course is composed of lectures followed by practical exercises.

### Requirements

1. Anyone who is a PhD student (in any relevant subject area is eligible to take this course) or experts with equivalent knowledge. Having knowledge of GIS and/or basic statistics is an advantage.
2. A portable computer and installation of software according to instructions for execution of all lab exercises
3. All lectures require pre-reading. Attending lectures and executing lab exercises is a must.

### Schedule

18–19, 25–26 March  
1–2, 8–9, 15–16, 29–30 April  
6–18 May (final project)  
20 May (presentation)

### Course fee

SEK 9500 paid by 31<sup>st</sup> March 2025

### Maximum number of students

25 students.

### Registration

Click here: [Registration form](#)

Contact: Ioannis Ioannidis [ioannisi@kth.se](mailto:ioannisi@kth.se)

Info about the course, contact: [vania.ceccato@abe.kth.se](mailto:vania.ceccato@abe.kth.se)

**WELCOME!**