FAI3308 Applied Spatial Analysis: An Introduction 7.5 credits

Tillämpad rumslig analys: en introduktion

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FAI3308 valid from Spring 2015

Grading scale

Education cycle

Third cycle

Specific prerequisites

Anyone who is a PhD student in any relevant subject area (e.g., Urban and Regional Planning, Economics, Real Estate, Geography, Demography, Criminology, Environmental Sciences) is eligible to take this course. However, having knowledge in Geographical Information Systems and/or basic statistics is an advantage.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

Interest in analyzing spatial data has grown considerably in scientific research community. In 2008 Nobel Prize in Economics was awarded to Paul Krugman which indicates the increasing attention being given to spatially related phenomena and processes. Given the fact that space is now on the agenda, the time has come for introducing to our PhD students some of the basic conceptual and empirical research on spatial analysis.

Course contents

The course is divided in three parts. In the first part the nature of the geographical data is discussed whilst the identification of spatial patterns is the focus in the second part of the course. The third part refers to confirmatory spatial data analysis using regression analysis, its applications and assessment (case study).

PART I – Lecture 1 -Thinking spatially: introduction to GIScience, Lecture 2 -The nature of spatial data, Lecture 3-Data quality.

PART II – Lecture 4 -Spatial structure of spatial data, Lecture 5 -Non-parametric methods of spatial interpolation, Lecture 6 - Areal interpolation. Lecture 7 - Exploratory spatial data analysis (ESDA). cluster detection methods and Lecture 8 - Introduction to confirmatory analysis.

PART III -Lecture 9 -Regression analysis. Lecture 10-Implementing space in social sciences: a summary, Lectures 11-12-Applications, Project (study case) and Project presentation.

The first week provides students with basic introduction to the course and tools. A set of introductory practical exercises will be provided to those unfamiliar with ArcGis, GeoDa and ScanStat. The first chapters in Haining (latest edition) should be read by the students before the first class (available in BILDA three weeks before the course starts).

Course literature

The readings required for the course are a book by Haining (latest edition) Spatial data analysis: theory and practice, a collection of articles, and excerpts from books. All lectures require pre-reading. The book and the collection of articles to be read for each meeting are handed out at course start.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

In order to pass the course, students need to:

- attend lectures and perform practical exercises

- participate in discussion in class ("forum-time" and hand in results on time)

- participate in and contribute to the work with the case study in group (maximum 2 individuals) that involves the development, the interpretation and critical reflection of results using spatial data analysis techniques learned during the course. Use of own datasets is encouraged.

Department personnel (researchers, PhD students) and peers assess each group performance together with the content presented in the poster. The written report is handed in to the head teacher

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.