



AG2422 Spatial Planning with GIS 7,5 hp

Spatial Planning with GIS

Fastställande

Kursplan för AG2422 gäller från och med HT10

Betygsskala

A, B, C, D, E, FX, F

Utbildningsnivå

Avancerad nivå

Huvudområden

Samhällsbyggnad

Särskild behörighet

A completed Bachelor of Science in Engineering or 180 credits academic studies in the field of Technical Science, Environmental Science, or planning and documented proficiency in English corresponding to English B.

Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

Lärandemål

Methods from geographical information science can be used in various ways in Spatial planning. The aim of the course is to give knowledge about the methods from GIS that are most important to spatial planners. Furthermore the course will give knowledge about how geographical information systems are used within various fields of spatial planning.

Kursinnehåll

The course covers the following topics within geographical information science:

- Geographical Visualization – How to design maps and visualize three dimensional geographical data models.
- Interpolation methods – In Spatial planning several different kinds of data need to be analyzed, e.g. statistics, environmental data, topographic data etc. Some of these data have a spatial component but are not stored as geographical data. Statistics may have a relation to address. Pollution of soils may be related to a certain point where the measurement was made. This course will give you insights into different ways of interpolation that can be used to create geographical data. These data can then be used in a GIS to perform spatial analysis.
- Multi Criteria Evaluation, MCE – In a spatial planning problem, such as finding the best route for an oil pipeline, we often have to consider a large number of different criteria associated with different data sources. MCE is a decision support tool that is used to combine the different criteria into a suggestion for a solution.
- Error propagation – When solving a spatial planning problem data of different quality are combined and analyzed to reach a solution. The errors in the source data propagate through the analysis made in the GIS. Different methods to verify the validity of a results from GIS analysis will be described.
- Modeling and analysis of networks – Networks are mainly used in traffic planning but also in utilities management. Here we will focus on algorithms and models used in traffic planning
- Spatial statistics – An introduction to different methods in spatial statistical analysis that are relevant to spatial planning.
- Analysis tools - The course will cover the use of various analysis tools in GIS such as map algebra, buffering, overlay, queries etc.

Furthermore the course will show how GIS is used within the fields of: local planning, regional planning, environmental planning and transportation planning. Rather than giving a comprehensive overview of how GIS is used in each field different examples will illustrate how GIS can be used to solve different tasks in spatial planning.

The exercises will give hands on experience in using vector (Arcview) and raster (Idrisi) based GIS to solve problems in spatial planning.

Kursupplägg

Lectures 20h

Laboration 40h

Kurslitteratur

Course book:

Longley, Goodchild, Mcguire and Rhingl (2002). Geographic Information Systems and Science.

Examination

- PRO1 - Project, 1,5 hp, betygsskala: P, F
- TEN1 - Examination, 4,5 hp, betygsskala: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1,5 hp, betygsskala: P, F

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

Övriga krav för slutbetyg

Written examination (TEN1; 4,5c)

Approved laboration (LAB1; 1,5c)

Project (PRO1; 1,5c)

Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.
- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.