# AH2306 Geographic Information Systems in Transport Analysis 7.5 credits

## Geografiska informationssystem i transportanalys

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 AH2306 valid from Autumn 2009

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

## Specific prerequisites

**For single course students, i e students not enrolled in KTH´s regular programmes, the following is required:**

- Completed and documented upper secondary education including documented proficiency in English and

- a completed Bachelor's degree in Engineering, Science, Economics or Planning including at least 60 credits in Mathematics, Physics, Statistics and/or Computer Science, as defined in the admission requirements for the Master's programme in Transport Systems

**For students enrolled in the Master´s programme in Transport Systems at KTH,** the course in Transport and Society, AH2300, is recommended.

## Language of instruction

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

## Intended learning outcomes

After the course, students will be able to:

* Recognize "spatial questions" in the context of transport planning and analysis

* Describe data needs for developing a geospatial database for transport analysis

* Distinguish between vector-based and raster-based geographic analysis methods and the occasions where they are appropriately used

* Choose appropriately a geographic data model for use in a typical transport problem context

* Identify potential sources of spatial data quality problems and characterize how they may affect the quality and character of analysis results

* Recognize and critique spatial analysis methods that are employed behind commonly available transport analysis results

* Design visualizations of geospatial data that minimize distortions and misperceptions

* Anticipate the likely benefits and drawbacks of using GIS for communicating transport data, plans, and analysis results to the public

## Course contents

This course consists of three parts:

1. In the first part of the course, students will learn foundations and principles of GIS, including data models and basic spatial analysis, as well as gaining sufficient familiarity with GIS software to be able to apply it to a variety of applied contexts. This part consist of lecture and lab sessions.

2. The second part of the course consists of integrated lecture-and-lab sessions, each of which focuses on a different application of GIS in the context of transport planning and analysis.

3. The final part of the course is an examination, which will assess students' understanding of the material.

## Course literature

Required text: Longley P.A., Goodchild M.F., Maguire D.J. and Rhind D.W., 2005, Geographic Information Systems and Science, 2nd Edition, John Wiley and Sons, Ltd., New York.

## Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- LAB2 - Applied Laboratory work, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F

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.

## 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.