AH2177 Transport and Geodata Analysis 6.0 credits

Transport och geodataanalys

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 AH2177 valid from Autumn 2013

Grading scale

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

Education cycle

Second cycle

Main field of study

Built Environment

Specific prerequisites

Bachelor's degree in engineering, science, economics, planning or a similar degree, with at least 60 cr (ECTS) in mathematics, physics, statistics and/or computer science, as defined in the admission requirements for the Master's programme in Transport and Geoinformation Technology. Together with documented proficiency in English corresponding to English B.

Language of instruction

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

Intended learning outcomes

- Identify appropriate methods for transportation, traffic and spatial data collection.
- Understand transportation and geoinformation data needs
- Understand the role sampling the data collection
- Use descriptive statistics for the analysis and preparation of data
- Perform outlier analysis
- Perform statistical inference for hypothesis testing and interval estimations
- Specify and estimate linear regression models and discrete choice models
- Apply methods and interpret results using statistical software
- Discuss and compare linear regression models and discrete choice models and their attributes

Course contents

- Transportation and geoinformation data needs
- Sampling and sample statistics.
- Descriptive statistics and outliers
- Hypothesis testing and confidence Intervals
- Linear regression and applications (in transport and traffic)
- Maximum estimation likelihood method and applications
- Other data analysis and model building methods
- The content of the course is presented and trained in tutorials. Applications are in traffic studies, transport planning and spatial analysis. Further training in field surveys and data analysis, model building and interpretation is carried out in the form of comprehensive project work. The project covers all the major steps that have to be undertaken including report preparation, discussion of the results. The students will also present their results for discussion.

Course literature

- M. Ben-Akiva, S. Lerman, Discrete Choice Analysis: Theory and Application to Travel Demand, MIT Press, 1987.
- J. de D. Ortúzar and L.G. Willumsen, Modelling Transport (2002).
- S. Washington, M. Karlaftis, F. Mannering, Statistical and Econometric Methods for Transportation Data Analysis (2003).
- O'Flaherty (ed.), Transport Planning and Traffic Engineering, chapter 12-13, 1997.

Examination

- PRO1 - Project Assignments, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written Examination, 3.5 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.

- PROA - Project Assignments, 2.5 credits, grade scale: A, B, C, D, E, FX, F
- TENA - Written Examination, 3.5 credits, grade scale: A, B, C, D, E, FX, F

Other requirements for final grade

A mandatory written examination equivalent to 3.5 cr with grading scale A-F and a mandatory project assignment equivalent to 2.5 cr with grading scale A-F. The course will have grading scale A-F, where the course grade will be determined by the grade on the written examination and the project work.

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.