AH2170 Transport Data collection and Analysis 7.5 credits

Transport Data collection and Analysis

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

Establishment

Course syllabus for AH2170 valid from Autumn 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

The 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 Systems. 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 and traffic data collection.
- Understand transportation 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
- Use data for model building including
- Linear regressions
- Non linear models.
- Apply methods and interpret results using statistical sofware

Course contents

- Transportation data needs
- Surveys and survey design
- Traffic studies
- Sampling and sample statistics.
- Descriptive statistics and outliers
- Hypothesis testing and confidence Intervals
- Linear regression and applications (in transport and traffic)
- Other data analysis and model building methods

The content of the course is presented and trained in tutorials. Applications are in safety studies, traffic studies, and transport planning. Further training in field surveys and data collection, reduction and analysis 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

To be determined. Possible literature may include:

- J.de D. Ortúzar and L.G. Willumsen (2002), Modelling Transport (2002).
- S.Washington, M Karlaftis, F.Mannering (2003).Statistical and Econometric Methods for Transportation Data Analysis (2003).
- A selection of research articles.

- O'Flaherty (ed.) (1997) Transport Planning and Traffic Engineering, (1997), chapter 12-13 (PW Bonsall) and parts of other chapters

Examination

- PRO1 - Project Assignments, 3.5 credits, grading scale: A, B, C, D, E, FX, F
- TENA - Written Examination, 4.0 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.

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

- PROA - Project, 3,5 hp, grades: A, B, C, D, E, FX, F
- TENA - Examination, 4,0 hp, grades: A, B, C, D, E, FX, F

Other requirements for final grade

A mandatory written examination equivalent to 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.