Intended Learning Outcomes

- Identify appropriate methods for transport traffic and spatial data collection

- Understand transport data needs

- Understand the role of the sample in the data collection process

- Be able to draw statistical conclusions from hypothesis test and interval estimations

- State and estimate linear regression models and discrete choices models

- Apply methods and interpret results by means of statistical software

Eligibility

Degree of Bachelor in technology, natural sciences, finance, planning or a similar higher education qualification with at least 60 credits. (ECTS) in mathematics, physics, statistics and/or computer science according to the conditions for entry requirements to master's education in transport and geographical information systems Together with documented knowledge in English equivalent English 6/B

Content

- Data Collection
  - Understand data needs
  - Identify appropriate methods and design (sampling) for data collection

- Analysis
  - Basics: Data preparation
  - Descriptive statistics, hypothesis testing, etc.
  - Regression models and discrete choice models

- Interpretation
  - Learn how to interpret numeric results into meaningful findings

Field: transportation, traffic and geospatial

How the course is organized?   **What do you need?**

Lectures

Building on theoretical knowledge

Labs

Applying the knowledge

Learning model building, calibration and validation

Lectures

Books and articles

Labs

Python and Spyder software packages
(install in your personal devices)

Assessment

<u>Lectures</u>

Final written exam

Graded as A,B,C,D,E,F and Fx

<u>Labs</u>

2 Lab Assignments (submission on specified deadlines on Canvas)

Graded as P, F

To Pass the course

To earn the credit:

You need to pass individually all 3 lab assignments and the exam

The course is extensive

You need to **Attend** all lectures and labs

Prepare for (read, practice) and **Participate** (ask questions) in the lecture and lab sessions

Grade improvement is allowed by taking the re-exam

Literature

Main Literature

- Washington, M. Karlaftis, F. Mannering. "Statistical and Econometric Methods for Transportation Data Analysis". Second Edition or Third Edition

- Richardson, Anthony J., Elizabeth S. Ampt, and Arnim H. Meyburg. Survey methods for transport planning. Melbourne: Eucalyptus Press, 1995.

- de D. Ortúzar and L.G. Willumsen. "Modelling Transport". Fourth Edition

Other relevant articles are provided in the canvas page

Communication

Canvas is the primary mode of communication

All lecture slides, literature and lab materials will be uploaded here

Individual Written Examination

- **The exam is Mandatory to pass the course**

- **Three exam sections corresponding to the modules**

- **Mandatory questions: must be answered to pass the exam**

- **Optional questions: to obtain higher grades**

Exam Environment

- Exam in computer rooms at KTH campus: access via Canvas exam page only

- Closed book: no notes, lecture materials or books are allowed.

- Answers should be written in Canvas in English.

- You can use of pen and paper to illustrate with diagrams and equations. Make sure to annotate.

- Write clear and complete answers, in your own words.

- Dictionary is allowed.

- Simple (not graph, scientific or smart) calculator is allowed.

Preparation for exam

- **Registration is mandatory**

- **Bring your ID**

- **Check your login**

- **Read the regulations**

  - https://www.kth.se/en/student/studier/kurs/tentamen/digital-tentamen/examination-i-datorsal-1.1104478

  - https://www.kth.se/en/student/studier/kurs/tentamen/skriftlig-tentamen-1.311668

- **Practice equation add in for Canvas**

  - https://intra.kth.se/en/utbildning/systemstod/canvas/guider/funktionen-sidor/infoga-symboler-uttryck-1.1104803

Grading

Name:	Range:		
A	100 %	to	85.0%
B	< 85.0 %	to	75.0%
C	< 75.0 %	to	65.0%
D	< 65.0 %	to	55.0%
E	< 55.0 %	to	45.0%
Fx	< 45.0 %	to	40.0%
F	< 40.0 %	to	0%

Grading Rubric

A : The student has presented solutions to all parts of the problem. The solutions are clearly motivated, correct and the results are discussed thoroughly and quantitatively. Minor obvious typos can be accepted.

C: The student's answers treat most of the problem and is largely correct but may contain computational errors and lack motivation of a few steps. A qualitative discussion of the results is present. Faulty arguments and inconsistent results can be accepted to a minor degree.

E: The student's answers demonstrates a basic understanding of the major issues and concepts treated in the problem. The student has attempted to make proper progress towards a solution to the problem. A discussion at the basic level is present.

F: A grade F is given if the criteria for a grade E are not achieved.