



AH2314 Individual Choice Modeling and Market Analysis 7.5 credits

Modellering av individers val samt marknadsanalys

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

Establishment

Course syllabus for AH2314 valid from Autumn 2014

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

For admitted students to the Master of Science in Civil Engineering and Urban Management (CSAMH) or the Master of Science in Transport and Geoinformation Technology (TTGTM), there are no additional requirements.

For other students:

- A completed bachelor's degree in civil engineering, urban planning, geomatics, geography, engineering physics, computer science, statistics, economics, and/or mathematics, including at least 6 university credits (hp) in each of the following or their equivalents: Programming, Linear Algebra, Calculus in One Variable, and Probability & Statistics; and
- English language proficiency equivalent to (the Swedish upper secondary school) English course B/6.

Language of instruction

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

Intended learning outcomes

After completing the course, the student should be able to

- describe different theories and models of individuals' choices
- formulate models of discrete choice, market demand and consumer surplus
- explain the concept of rationality, the basic assumption in the theory of expected utility as well as anomalies in the behavior of individuals.
- Independently program models and analyze data
- use simulation-based methods for prediction and estimation
- describe and use frequentist and Bayesian approaches for inference and prediction
- designing experiments / surveys for data collection, especially Stated-preference techniques

Course contents

To understand and predict the behavior of individuals – how, what and why individuals make the choices they make – is central in economics and marketing. For example, in the private sector it is important for executives to know how consumers will react to changes such as the introduction of a new product, or the alteration of goods attributes. The public sector has similar issues, for example if a car rebate is introduced for environmentally friendly cars, how is the car market affected then? Can the environmental objectives be achieved? Within this course, we study models of individual choice and econometric methods for inference and prediction.

The course consists of three different parts.

1. Theory of discrete choice, random utility maximization, mixed logit models, econometric estimation, simulated maximum likelihood
2. Alternative choice models, Prospect theory, reference dependence, anchoring, framing and anomalies. Choice modeling "as if" versus "as is".
3. Bayesian methodology in marketing

Disposition

For each part of the course, a theoretical basis is provided during the lectures, which will provide a knowledge base for a computer lab/homework assignment. Each part of the course is accompanied by a homework assignment. That is, normally, a total of three assignments are required to be completed during the course and the assignment reports are graded. The final course grade is based on an appraisal of the results of the reports and the results of the exam.

Course literature

Train, K., 2003, "Discrete choice methods with simulation", Cambridge University Press (Tillgänglig online).

Rossi, PE, Allenby, GM, McCulloch, R, (2005), Bayesian Statistics and Marketing.

S.Washington, M Karlaftis, F.Mannering (2003), Statistical and Econometric Methods for Transportation Data Analysis.

Utvalda artiklar

Examination

- PRO1 - Project Assignment, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.0 credits, grading scale: P, 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.

Other requirements for final grade

- PRO1 - Project assignment, 4,5 hp, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3,0 hp, grading scale: P, F

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.