AI2152 Quantitative Methods Applied to Real Estate and Construction Management 7.5 credits

Kvantitativa metoder tillämpade på fastigheter och byggnader

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

Establishment

Course syllabus for AI2152 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

Eligibility to the master's programme in Real Estate and Construction Management.

Language of instruction

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

Intended learning outcomes

The overall objective of the course is to provide basic knowledge in different quantitative methods, especially econometric methods, but also other popular statistical and quantitative methods needed for empirical and theoretical analyzes of various economic activities and processes. The students will also learn work with modern tools for quantitative data analysis like R and/or Python, as well as Excel, with the purpose of being able to write empirical reports.

By the end of this course the student will be able to:

- formulate and apply different econometric and statistical methods for empirical analysis of cross-sectional data, time series data and panel data,
- formulate and apply various quantitative methods for economic analysis of economic events in society in general and in particular in real estate, construction and financial markets,
- analyze and propose potential solutions to problems with different model assumptions,
- give examples of how quantitative methods can be used to analyze and develop activities that can lead to economic, environmental, and social sustainable development,in order to provide decision makers with information that can lead to more correct decisions being made.

Course contents

Descriptive statistics, random variables and probability distributions; regression analysis; hypothesis testing, predictions; econometric models with cross-section, time-series and panel data; model assumptions; demand and supply analysis; Excel; R and/or Python; Chi2-tests; quantitative models and research in real estate and financial economics; supervised and unsupervised learning.

Course literature

Information about course literature is presented in the course PM.

Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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.

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

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.