

COURSE SYLLABUS

Course title: Econometrics-3

Study programme and level

Study field

Masters, 2nd degree

Economics and finance

Prerequisites:

Knowledge and understanding of the basic concepts of mathematical analysis, combinatorics and probability theory

Content (Syllabus outline):

Introduction and review of statistics

Linear regression with multiple regressors

- Multicollinearity
- Heteroskedasticity
- Autocorrelation

Dummy variables

Lagged variables

Nonlinear regression functions

Maximum likelihood estimator

Regression with panel data

Regression with a binary dependent variable

Instrumental variable regression

Simultaneous equations models

- Fundamental issues in simultaneous-equations models (endogeneity and causality, a General Notation for Linear Simultaneous Equations Models)
- The Problem of Identification (The Rank and Order Conditions for Identification, Identification Through Other Nonsample Information, Identification Through Covariance, Restrictions—The Fully Recursive Model)
- Single Equation: Limited Information Estimation Methods (Ordinary Least Squares, Estimation by Instrumental Variables, Two-Stage Least Squares, GMM Estimation, Limited Information Maximum Likelihood and the k Class of Estimators, Two-Stage Least Squares in Models That Are Nonlinear in Variables)
- System Methods of Estimation (Three-Stage Least Squares, Full-Information Maximum Likelihood, GMM Estimation, Recursive Systems and Exactly Identified Equations)
- Comparison of Methods—Klein's Model I
- Specification Tests
- Properties of Dynamic Models (Dynamic Models and Their Multipliers, Stability, Adjustment to Equilibrium)
- Monte-Carlo Simulations

Introduction to time series regression

Cointegrated vector autoregressive models (VECM)

Assessing studies and application of econometric techniques on real data

Estimating quarterly econometric model of an economy

Objectives and competences:

Objectives:

Broadening and deepening the knowledge of quantitative methods with the basic econometric methods.

Understanding the use of different econometric tools to empirical verification of economic relationships and testing economic theories.

Reading ability and critical assessment of

empirical papers in internationally recognized economic and econometric literature.

Equip students with the practical skills of using various econometric software on actual data in the evaluation of economic models.

Teach students how to effectively use econometric methods to further scientific and research work.



General competences:

By using the most modern econometric tools, students are able to formalize the problem, build an appropriate model and empirically test the effects of different economic policies on real data.

Intended learning outcomes:

Knowledge and understanding:

Knowledge and understanding: Students acquire knowledge of empirical verification of relationships between different economic categories.

Application: With modern methodological approach students are able to determine the basic characteristics of the economic system and to test the changes coming from different economic policies.

Reflection: By using economic models, students are able to empirically analyze and the real data.