Department of Statistics-Forecasts-Mathematics
Subject: Advanced econometrics
Academic Year: 2024-2025
Doctoral Studies in Economics and Business Administration

SYLLABUS

Topic 1. Estimation theory and estimators
Probability distributions;
Joint and conditional distributions. Measures of associations;
Point estimation. Sample properties of estimators;
Interval estimation and confidence intervals;
Hypothesis testing. Types of error, power of the test, p-value;
Examples of hypothesis testing; applications using SPSS, R, EViews, other software.

Topic 2. Introduction to bootstrap theory
Inference and confidence intervals;
Finite versus asymptotic confidence intervals;
The principles of bootstrap construction of confidence intervals;
Theorems of asymptotic convergence in bootstrap theory.

Topic 3. Panel data
Unfeasibility of the estimation of the most general linear model on panel data;
Assumptions on the coefficients and errors which characterize the *classical* linear panel data models ("seemingly unrelated regression", "fixed effects", "random effects" etc.);
Estimation and inference in the *classical* linear panel data models; applications using Gauss, EViews, Stata, other software.

Topic 4. Dynamic panel data
Estimation and inference in dynamic panel linear models: estimation by "GMM" (instrumental variables);
The estimation methods of "Liviatan", "Anderson-Hsiao", "Arellano-Bond".

Topic 5. Partial least squares structural equation modeling (PLS-SEM):
Model specification,
Reflective measurement model evaluation,
Structural model assessment

References:

Field, A., Jeremy Miles, J. and Field, Z., *Discovering Statistics Using R*, Sage, 2012.

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http://martinschweinberger.de/docs/materials/Field%20Miles%20Field%202012%20Discovering%20statistics%20with%20R.pdf

Greene, W.H., *Econometric Analysis* (any edition) – a copy of the edition 2011 can be found in the informal library of the SFM department (SPM), offices 229/230/231, FSEGA/UBB building.

Newbold, P., Carlson, W.L. and Thorne, B.M., *Statistics for Business and Economics,* Pearson.
http://www.noahc.me/Statistics%20for%20Business%20and%20Economics%208th%20ed%20-%20Newbold,%20Carson,%20Thorne%20(Pearson,%202013).pdf

Wooldridge, J.M. (2012), *Introductory Econometrics: A Modern Approach.* South Western.
http://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey_M._Wooldridge_Introductory_Econometrics_A_Modern_Approach__2012.pdf

Eviews Guide:
http://www.eviews.com/EViews8/EViews8/EViews%208%20Users%20Guide%20II.pdf
Especially Pooled Time Series, Working with Panel Data, Panel Estimation.

Stata Guide:
https://www.stata.com/manuals13/u.pdf
http://www.stata.com/links/resources-for-learning-stata/

Hair J.F., Hult G.T.M, Ringle C.M., Sarstedt M, A primer on partial least squares structural equation modeling, Sage Publishing, 2021

Lecture notes.

Head of Department

Prof. Paula CURT

Lecturers

Prof. Codruța MARE

Prof. Marko SARSTEDT

Prof. Cristian Marius LITAN

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