

1. Course name and code: Panel adatelemzési módszerek	
2. Programme name/ level of training	3. Language of instruction: English
4. Course classification:	5. Assessment:
6. Number of lessons per week: 1	7. ECTS:
8. Fall / Spring	9. Programme:
10. Pre-requirements: Introduction to Econometrics, Economic Statistics, Calculus, Linear Algebra, Probability Theory	
11. Department in charge of the course:	
12. Person in charge of the course:	
13. Instructor of the course: Chen Chaoyi	
<p>14. Course description</p> <p>This is a course on applied econometrics dealing with panel data sets. Topics to be studied include specification, estimation, and inference in the context of models that include individual (e.g, country, firm) and/or time effects. We will start with a review of the linear regression model with cross-sectional, then apply it to panel data settings involving 'fixed' and 'random' effects. The basic model will be extended to spatial and dynamic models with recently developed GMM and instrumental variables methods. If time permits, we will also extend to study nonlinear panel model. We will consider numerous applications, including static and dynamic panel data regression models.</p> <p>Aims and content of the course:</p> <ol style="list-style-type: none"> 1. Reviews of Basic Econometrics <ol style="list-style-type: none"> a. Simple and Multiple Regression b. System of Regression Equations c. Model Estimation: OLS, IV, 2SLS d. Hypothesis Testing and Inference 2. Panel Data Analysis: Basic <ol style="list-style-type: none"> a. Pooled Panel Model b. Fixed Effects Model c. Random Effects Model d. Within Estimator 3. Panel Data Analysis: Extensions <ol style="list-style-type: none"> a. Heteroscedasticity and Autocorrelation b. Instrumental Variable and GMM Estimation c. Hypothesis Testing and Inference 4. Dynamic Panel Data <ol style="list-style-type: none"> a. Dynamic Panel Data Analysis b. First-differenced Estimator 5. Panel Nonstationarity (Time Permitting) <ol style="list-style-type: none"> a. Panel Unit Root b. Panel Cointegration <p>Professional competencies to be acquired (knowledge, skills, attitude, autonomy and responsibility)</p> <ol style="list-style-type: none"> a) Knowledge: Understand core concepts in panel data and its application to panel data. b) Skills: Students will be able to apply various panel econometric methods to investigate the causal effect between economic variables. c) Attitude: Apply an evidence and data-based approach to knowledge and understanding. d) Autonomy: Perform independent analysis on your own research project 	

13. Requirements:

Points	Grade
86-100	5
76-85	4
61-75	3
50-60	2
0-49	1

Semester requirements:

14. Auxiliary materials, tools required:**15. Compulsory and recommended reading list:*****Compulsory:***

- B. H. Baltagi, [Econometric Analysis of Panel Data](#), 4th ed., John Wiley, New York, 2008.
- W. H. Greene, [Econometric Analysis](#), 7th ed., Chapter 11: Models for Panel Data (and selected sections in Chapters 13 and 17), Prentice Hall, 2011.

Recommended:

1. M. Arellano, [Panel Data Econometrics](#), Oxford University Press, 2003.
2. C. Hsiao, [Analysis of Panel Data](#), 3rd ed., Cambridge University Press, 2014.
3. J. M. Wooldridge, [Econometric Analysis of Cross Section and Panel Data](#), 2nd ed., The MIP Press, 2010.