

M.Sc. Economics

Code:		Type:	M.Sc. 2 nd semester lecture series
Title:	Econometrics I		
Lecturer:	Wolfgang Scherrer		
ECTS:	7	Contact hours (per semester):	24 à 90min
Semester:	Summer 2010	Frequency of the lecture:	Twice a week 90 min.
Dates:	March 12 th , 2010 until June 4 th , 2010		

Prerequisites:	Mathematics I, Mathematics II, Statistics
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Learning objectives (What are the intended learning outcomes? Which skills will be acquired?):
The goal of this course is to develop a detailed understanding of the linear regression model, which forms one of the cornerstones in Econometrics and an in depth understanding of which is key for subsequent econometric studies as well as applications.

Content (Which professional competence and which contents will be imparted?):
<ul style="list-style-type: none"> ▪ Introduction: what is Econometrics; basic concepts and definitions related to econometric methods and models ▪ Empirical Regression: The Algebra of Least Squares: the least squares problems; the normal equations; geometric interpretations; uncentered and centered R^2; solving the least squares problem under linear constraints; partitioned regression (the Frisch-Waugh theorem) ▪ The (Econometric) Linear Regression Model: discussion of the assumptions; the meaning of linear estimator, bias and best (BLUE); the Gauss-Markov theorem; estimation of errors and error variance (BQUE); the generalized regression model (Gauss-Markov-Aitken theorem); estimation under linear restrictions; stochastic regressors; correlation between regressors and errors ▪ Distributions, the Likelihood Function and Hypothesis Tests: normal distribution; quadratic forms of normal distributions; the likelihood function and maximum likelihood estimation; testing principles; hypothesis testing within the normal linear regression model; some model specification tests ▪ Some Concepts of Asymptotic Analysis: stochastic convergence concepts; some theorems useful for the asymptotic analysis of regression models; asymptotic properties of estimators ▪ Estimation and Testing in the Generalized Regression Model: sets of assumptions for the asymptotic analysis of regression models; two-step estimation of regression coefficients and the asymptotic behavior of such estimators; robust inference; hypothesis tests in the generalized linear regression model

Teaching approach (Description of the learning and teaching methods):
The course consists of lectures and homework assignments to be discussed in class.

Workload (Optional: definition of workload (ECTS), divided in pre-modules (e.g. pre-readings), core-modules (contact hours), post-modules (e.g. case studies)):
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Language of instruction (Information on the language of teaching):
English

Obligatory literature (E.g. scripts, books, articles, cases, papers):
Parts of the material will be distributed in the form of lecture notes (scripts)

Additional literature (E.g. books, articles, cases, papers):
<p>The course will be essentially self-contained. Material covered in the course is treated e.g. also in the following books:</p> <ul style="list-style-type: none"> ▪ Baltagi, Badi H. (2008), <i>Econometrics</i>, Springer. ▪ Ruud, P.A. (2000), <i>An Introduction to Classical Econometric Theory</i>, Oxford University Press. ▪ Schönfeld, P. (1969), <i>Methoden der Ökonometrie</i>, Band I, Verlag Franz Vahlen. ▪ Schönfeld, P. (1971), <i>Methoden der Ökonometrie</i>, Band II, Verlag Franz Vahlen.

Mode of examination (Mode of the examinations and tests (e.g. oral or written examination, lecture, homework, papers, class participation)):
Written examination and classroom participation

Grading:
<p>The final grade will be composed of three components:</p> <ul style="list-style-type: none"> ▪ 60% of the final grade will be due to the results of the written final examination ▪ 20% of the grade relate to class participation (in particular participation in the practice sessions) ▪ 20% of the grade relate to homework (econometric analysis of a data set)

Special features (E.g. excursion, guest speaker):
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Contact information:	Office hours:
<p>Ao. Univ.-Prof. Dr. Wolfgang Scherrer Institute for Mathematical Methods in Economics Research Unit Econometrics and Systemtheory Vienna University of Technology Argentinierstraße 8 / 105-2 A-1040 Vienna Phone: 01 58801 11946 E-mail: Wolfgang.Scherrer@tuwien.ac.at</p>	<p>By appointment</p>

Course website:
https://cecnet.tuwien.ac.at