

## Syllabus

<b>Econometrics</b>			
<b>Responsible:</b>			
Professor Dr. Martin Kukuk, Chair of Econometrics			
<b>Program:</b>	<b>Type:</b>	<b>Term:</b>	<b>ECTS:</b>
Master	Lecture	Summer	5 CP
<b>Contents &amp; Objectives:</b>			
<p>This course provides students with the basic econometric concept of the ordinary least squares (OLS) regression. They learn the basic methodology and various applications. At the end of the course, they should be able to use regression analysis in a meaningful way to help answer scientific questions of their own interest.</p> <p>The course consists of a series of weekly lectures and additional exercise classes that take place on a two-week basis. The lesson plan is divided into three main parts.</p> <p>The course starts with an introduction and a review of some basic statistical concepts such as random variables and moments, important uni- and multivariate distributions, point estimators, and hypothesis testing.</p> <p>The second part focuses on the simple linear regression model. In particular, the model assumptions and the LS-Estimators are derived. After taking a closer look at the residuals of the regression and the goodness of fit of the model, the properties of the estimators are discussed and the concept of forecasts is introduced, before the students are taught how to conduct statistical inference with the help of confidence intervals and simple hypothesis testing.</p> <p>In the last part the multiple linear regression model is introduced. Initially, the simple model is considered as a special case of the multiple regression model and the students are familiarized with matrix notation. The rest of the course deals with estimation with linear restrictions imposed as well as topics such as dummy variables, interaction terms, and non-linearities in the variables. Finally, some important test distributions such as the chi-squared and the F-distribution are formally derived in order to be able to verify simple and multiple linear restrictions.</p>			
<b>rerequisites:</b>			
Students attending this course should know about basic statistics. Further prerequisites are not required.			
<b>Course Structure:</b>			
<b>Week</b>	<b>Content</b>		
1-4	Introduction and basic statistical concepts		
5-8	Simple regression model		
9-12	Supplementary notes for the multiple regression model		

<b>Literature:</b>
Greene, W. H.: Econometric Analysis, Philip Allan.
Verbeek, M.: Modern Econometrics, John Wiley.
Baltagi, B.: Econometrics, Springer Verlag.
Maddala, G. S.: Introduction to Econometrics, Prentice Hall.
Wooldridge, J.: Introductory Econometrics, Cengage Learning.
<b>Grading:</b>
There will be an exam at the end of the semester.
<b>Contact:</b>
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