COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Data Analysis and Econometrics	

Academic staff	Core academic unit(s)
Coordinating: prof. dr. Paul Huenermund **Other(s):**	Faculty of Economics and Business Administration

Study cycle	Type of the course unit
Second	Compulsory

Mode of delivery	Semester or period when it is delivered	Language of execution
Mixed (auditory and remote)	Spring semester	English

Requisites	
Prerequisites: knowledge of micro- and macroeconomics, econometrics	**Co-requisites (if relevant):**

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	130	32	98

Purpose of the course unit		
The purpose of the subject is to provide students with knowledge and practical skills on using the available data to model economic situations and the results of impact measures by combining economic theory and quantitative research methods. After taking the lecture course, students will acquire the subject and general skills (skills) necessary for making decisions based on the analysis of economic data.		
Learning outcomes of the course unit	**Teaching and learning methods**	**Assessment methods**
Will gain a deep understanding of the application of economic theories by analysing and interpreting complex economic phenomena at the micro and macro level, knowledge of the dynamics of the global economy	Critical reading of the text, problematic teaching, lecture discussion, problematic conversation, demonstration	Homework (tests with open and closed questions); final test
Will be able to independently accumulate scientific information necessary to verify economic insights; select the appropriate empirical data to determine the relationship between economic phenomena and group them, analyse them and otherwise manage them		
Will be able to choose the proper research methods, independently carry out these studies and present their results in the form of a report with reasonable conclusions and suggestions	Computer and theoretical modelling, learning in action, learning in solving problems, critical reading of the text, arguments for and against	Evaluation of the presentation of the case study
They will be able to identify gaps in their knowledge and find ways to fill these gaps, raising problems,	Critical reading of the text, learning in solving	Homework (tests with open and closed questions); final test

arguing critically and developing ideas for the application of problem-solving alternatives.	problems, case studies, participation in discussions	

Content	Contact hours							Individual work: time and assignments	
	Lectures	Tutorials	Seminars	Workshops	Internship	Laboratory work	**Contact hours, total**	**Individual work**	**Tasks for individual work**
1. Introduction: goals and objectives of the subject, abilities and benefits acquired by students. Knowledge assessment system. Organisation and requirements for lectures and practical classes. Acquaintance with the subject	1						1		Reading literature; identification of problems, discussion, test.
2. Introduction to working with data: familiarisation with databases; methods of processing and transforming data in them; spatial data analysis, panel data, and (population) time series.	2		2				4	12	
3. Probabilities and their application: joint and conditional; Bayesian rule. Random variables (discreet and continuous), functions of probability distributions. Covariance. Sampling and their statistics.	3		3				6	18	Reading literature; discussion, solution of tasks, case studies, test (for open and closed questions).
4. Regression. Conclusions: testing hypotheses. Pair analysis and paired linear regression. Polynomial linear regression. Diagnosis of regression. The validity and economic significance of regression.	3		3				6	20	Reading literature; discussion, solution of tasks, case studies, test of closed questions.
5. Application of multi-member regression (I): difference in differences, regression of fixed effects. Application of control variables: best practice.	3		3				6	20	
6. Application of polynomial regression (II). Linear regression error and testing of the assumption of exogenous Introduction to applying fictitious variables; Wals test and 2SLS.	2		3				5	18	Reading literature, discussion, and solving tasks.
7. Logit and Probit models: features, meaning and application of models.	2		2				4	10	
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Assessment strategy	Weight %	Deadline	Assessment criteria
Homework (tests with open and closed questions)	45	During the semester	Work at home. Timely tests of home dabs with open and closed issues are evaluated. A 10-point scale is applied to the assessment. Tests with closed questions and tasks are assessed according to the volume of correctly performed tasks and questions answered, taking into account the weight assigned to them in the final grade of the test. Open-ended questions are evaluated according to the demonstrated level of knowledge and the completeness of the answers, which is evaluated according to the assessment scale given at the final section of the test.
Case study presentations	15	During the semester	A 10-point scale is applied to assess case study presentations. The evaluation criteria are as follows:

			clear presentation of ideas, quality of speech (clarity, volume), quality of reasoning, quality of conclusions, eye contact with the audience, quality of visually presented material, question management (quality of answer to questions), and time management (whether the time allotted for the presentation is properly used).
Final test	40		The final test consists of 20-30 open and closed questions (optionally, by the lecturer's decision). Rated as follows: 10 points or excellent knowledge and abilities: the work is done by all requirements; 9 points or good knowledge and skills: the work is done according to all requirements, but minor and minor errors are possible; 8-7 points or average knowledge and skills: the work does not fully meet the requirements, minor mistakes are possible; 6 points or satisfactory knowledge and abilities: the work does not fully meet the requirements, the structure of the work is not very clear and logical, the necessary parts are missing, data analysis is weak, and superficial conclusions are made. 5 points or weak knowledge and abilities: the work meets the minimum requirements. 4-1 points or unsatisfactory knowledge and abilities: the work does not meet the minimum requirements.
The grade of the subject exam is satisfactory when the arithmetic weighted average of the final test (correct answers must be at least 50 percent) and all other assessments (homework and case study presentation) is at least 5 points.			
Externship exam is possible.			

Author (-s)	Publishing year	Title	Issue, volume	Publisher
Mandatory literature				
Stock, James H. Watson, Mark W.	2019	Introduction to Econometrics	4th Edition: Series in Economics	Pearson
Elliot Tanis, Dale Zimmerman, Robert V. Hogg	2019	Probability and Statistical Inference	9th edition	Pearson
Joshua D. Angrist, Jorn-Steffen Pischke	2014	Mastering Metrics: The Path from Cause to Effect		Kindle Edition
Paul D. Allison	1998	Multiple Regression: A Primer		Sage Publications
Further reading				
Enders, Walter	2014	Applied Econometric Times Series	4th ed.	John Wiley & Sons, Inc.
Kirchgässner, Gebhard Wolters, Jürgen Hassler, Uwe	2013	Introduction to Modern Time Series Analysis	2nd ed.	Springer-Verlag
Wooldridge, Jeffrey M.	2012	Introductory Econometrics: A Modern Approach	5 th Edition	South-Western College Pub
Dougherty, Christopher	2011	Introduction to Econometrics	4 th Edition	Oxford University Press
Ravallion, Martin	2001	The Mystery of the Vanishing Benefits: An Introduction to Impact Evaluation	15(1), 115-140	The World Bank Economic Review