

DEPARTMENT OF BUSINESS AND ECONOMICS
COURSE SYLLABUS

Course Details				
Code	Academic Year			Semester
BE032	2021-2022			
Title	T	A	L	ECTS
Advanced Econometrics and Time Series Analysis	3	1	0	10
Language	English			
Level	Master		Doctorate	X
Department / Program	PhD in Business and Economics			
Forms of Teaching and Learning	Face-to-Face			
Course Type	Compulsory		Elective	X
Objectives	<p>The course will provide extensive knowledge on sampling distributions, asymptotic theory, estimation, classical regression model, generalized regression; nonlinear regression; simultaneous equations, identification, instrumental variables. Extensions and applications Maximum Likelihood, GMM, VAR, GARCH, panel data analysis. The course will also provide extensive knowledge on advanced topics in the empirical applications and tests of macroeconomic and/or microeconomic theories. After the class students will be able to apply econometric models into standard business or economics related problems. The second part of the course will cover the following topics: estimation and inference of non-stationary time series, ARMA Modeling, Box-Jenkins method, unit roots and ARIMA Models, Stationary vector models, Cointegration, Forecasting with time series, Spectral Theory and Filtering, Multivariate Time Series, nonlinear and non-Gaussian time series.</p>			
Content	<p>Departures from the standard assumptions: specification tests; a first look at time series; generalized regression; nonlinear regression; simultaneous equations, identification, instrumental variables. Extensions and applications: ML, GMM, VAR, GARCH, panel data.</p>			
Prerequisites				
Coordinator				
Lecturer(s)				
Assistant(s)				
Work Placement				
Recommended or Required Reading				
Books / Lecture Notes	Economic Theory and Methods (Russel Davidson and James MacKinnon, OUP, 2009)			
Other Sources	Lecture Notes			
Additional Course Material				
Documents	Lecture Notes and Books			

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Assignments	Assignments		
Exams	Midterm and Final		
Course Composition			
Social Sciences			%100
Educational Sciences			%
Natural Sciences			%
Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam			30
Quiz			
Assignments			30
Attendance			
Recitations			
Projects			
Final Exam			40
Total			100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	2	28
Assignments	12	5	60
Presentation / Seminar Preparation			
Midterm Exam	1	60	60
Recitations			
Laboratory			
Projects			
Final Exam	1	90	90
Total Work Load			280
ECTS Points (Total Work Load / 28)			10
Course Learning Outcomes			
1	Distinguish the results of violating the assumptions of classical regression model		
2	Explain the nature and the results of heteroscedasticity		

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3	Explain model specification errors
4	Define basic concepts in time series econometrics
5	Perform Dickey-Fuller and augmented Dickey-Fuller tests for stationarity.

Weekly Content

1	Preliminaries and Generalized Least Squares (GLS)
2	GLS and Panel Data
3	GLS and Panel Data
4	IV
5	IV
6	GMM
7	GMM
8	Nonlinear GMM
9	Midterm
10	Maximum Likelihood Method
11	Maximum Likelihood Method
12	Multivariate Models
13	Time Series with Stationary Data
14	Time Series with Stationary Data
15	Overview

Contribution of Learning Outcomes to Program Objectives (1-5)

CLO	P1	P2	P3
1	4	3	5
2	4	5	5
3	3	3	4
4	5	4	4
5	3	4	4

Contribution Level 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:

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