İZMİR UNIVERSITY OF ECONOMICS

Graduate School of Business
Financial Economics (With Thesis)
ECON 533 - Econometrics and Quantitative Methods

COURSE INTRODUCTION AND APPLICATION INFORMATION

Course Name	Code	Semester	Theory (hour/week)	Application/Laboratory (hour/week)	Local Credits	ECTS
Econometrics and Quantitative Methods	ECON 533	Fall	3	0	3	7.5

Prerequisites	None

Course Language	English
Course Type	Required
Course Level	Second Cycle
Course Coordinator	-
Course Lecturer(s)	* Yrd. Doç. Dr. Gül ERTAN
Course Assistants	-
Course Objectives	To provide tools for solving static and dynamic optimization problems and for working with their solutions in economic models. The focus of the course is on providing solution methods and examples of economic applications. It is meant to equip the students with the quantitative skills they need for the courses such as Financial Econometrics and Quantitative Applications in Economics and Finance.
Course Learning Outcomes	The students who succeeded in this course; * will be equipped with tools to solve basic static and dynamic economic optimization problems. * will be able to work with the solutions of optimization problems in economic models * will be able to use the methods of Langrange multiplier and dynamic programming. * will be able to perform simulations of a basic macroeconomic model.
Course Content	The course starts with static optimization and continues with dynamic optimization methods, both in deterministic and in stochastic world. The course illustrates how these methods are useful in various applications, drawing on many economic examples. The last part of the course focuses on the simulation of a basic macroeconomic model by using a software platform called Dynare.

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Introduction	
2	Optimization of Quadratic Forms	Mathematics for Economists, Chp. 16
3	Optimization: Unconstrained Optimization	Mathematics for Economists, Chp. 17
4	Holiday	
5	Optimization: Constrained Optimization I	Mathematics for Economists, Chp. 18
6	Optimization: Constrained Optimization II	Mathematics for Economists, Chp. 19
7	Optimization: Constrained Optimization III	Mathematics for Economists, Chp. 19
8	Midterm Exam I	
9	Deterministic World: Two-period models and difference equations	Applied Intertemporal Optimization, Chp 2
10	Deterministic World: Dynamic optimization in multi period models	Applied Intertemporal Optimization, Chp 3
11	Stochastic World: Two-period models and difference equations	Applied Intertemporal Optimization, Chp 7, 8
12	Midterm Exam 2	
13	Introduction to Dynare	Dynare: Reference Manual, Version 4
14	Simulation with Dynare	Dynare: Reference Manual, Version 4
15	Simulation with Dynare	Dynare: Reference Manual, Version 4
16	Review of the Semester	

SOURCES

Course Notes / Textbooks	Mathematics for Economists, Carl P. Simon, Lawrance Blume. W.W. Norton & Company, Inc. (1994) Applied Intertemporal Optimization Theory, Klaus Walde.
References	

EVALUATION SYSTEM

Semester Requirements	Number	Percentage of Grade
Attendance/Participation	16	10
Laboratory	-	-
Application	-	-
Field Work	-	-
Special Course Internship (Work Placement)	-	-
Quizzes/Studio Critics	-	-
Homework Assignments	2	20
Presentation/Jury	-	-
Project	1	30
Seminar/Workshop	-	-
Midterms/Oral Exams	2	40
Final/Oral Exam	-	-
Total	21	100

PERCENTAGE OF SEMESTER WORK	**-**	**60**
PERCENTAGE OF FINAL WORK	**-**	**40**
Total	0	100

COURSE CATEGORY

Course Category	Core Courses	X
	Major Area Courses	
	Supportive Courses	
	Media and Managment Skills Courses	
	Transferable Skill Courses	

THE RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS

#	Program Qualifications / Outcomes	* Level of Contribution				
		1	2	3	4	5
1	Developing and deepening the knowledge of economics and finance to an expert level, building on the competencies of the undergraduate education.					
2	Comprehending the interaction between related disciplines and financial economics.					
3	To be able to apply the advanced level knowledge acquired in economics and finance.					
4	Creating new knowledge by combining the knowledge of financial economics with the knowledge coming from other disciplines and also be able to solve problems which requires expert knowledge by applying scientific methods.				X	
5	To be able to critically evaluate the knowledge in financial economics, to lead learning and carry out advanced level research independently.					
6	To be able to comprehend and evaluate any issue or problem in financial economics individually, to develop solutions to problems independently and apply them when necessary.					X
7	To be able to develop new strategic approaches for unexpected, complicated situations in financial economics and take responsibility in solving it.					
8	To be competent in the tools that will put the acquired expert knowledge to professional use.					X
9	To possess the communication network to put the economic and social needs of the region of residence on the agenda.					
10	To have adequate social responsibility and conciousness about the needs of society and to have the experience and authority to organize and support the operations that can affect and drive the social dynamics when necessary.					
11	To be able to think analytically to identify problems in financial economics and to be able to make policy recommendations in economics and finance based on scientific analysis of issues and problems.					
12	To protect the social, scientific and ethical values at the data collection, interpretation and dissemination stages and to be able to introduce and supervise these values.					X
13	To be able to use the skills of modelling, empirical analysis and formulating policy options that are developed for financial economics, in interdisciplinary contexts.					X

*1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

ECTS / WORKLOAD TABLE

Activities	Number	Duration (Hours)	Total Workload
Course Hours (Including Exam Week: 16 x Total Hours)	16	3	48
Laboratory	-	-	-
Application	-	-	-
Special Course Internship (Work Placement)	-	-	-
Field Work	-	-	-
Study Hours Out of Class	16	4	64
Presentations / Seminar	-	-	-
Project	-	-	-
Homework Assignments	2	16	32
Quizzes	-	-	-
Midterms / Oral Exams	2	25	50
Final / Oral Exam	1	31	31
		Total Workload	**225**