ECON 533 | 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 ÖZGÜZER

Course Assistants -

Course Objectives The main goal is to give the quantitative skills necessary to understand finance and economics through the master level. The focus of the course is explaining to use mathematical tools efficiently and accurately in the solution of economic and financial problems. The course also equips the students with the techniques like regression to make economic forecasts. To discuss several optimization problems encountered in financial and economic models, and to explain how to solve such problems using recent advances in methods are the other two objectives.

Course Learning Outcomes The students who succeeded in this course;

- will be able to use mathematical tools efficiently and accurately in the solution of economic and financial problems.
- will be able to work with the solutions of optimization problems in economic models
- will be able to use differential calculus to understand demand theory, production theory and output decision of the firm
- will be able to use the techniques like regression to make economic forecasts.

Course Content The course starts with single variable calculus and single variable optimization. It focuses on their applications to demand theory, production theory, and output decision of the firm. Then it moves on to explaining the multivariable calculus and optimization with an emphasis on economic and financial applications. The course illustrates how all these methods and tools are useful in various applications, drawing

on many economic and financial markets examples. The last part of the course gives attention to simple regression amd multiple regression analysis.

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Introduction: Basic concepts in economics	Managerial Economics, Keat, Young and Erfle Ch 3
2	Single Variable Calculus -using first derivatives and second derivatives to find maxima and minima - applications to economics and finance	Mathematics for Economists, Simon and Blume Chp. 4 -Calculus and its Applications Bittenger, Ellenbogen, and Surgent Chs 2.1-2.5 - Essential Mathematics for Economic Analysis, Sysaeter and Hammond Chs 7-8 Managerial Economics, Keat, Young and Erfle Chs 6
3	Single Variable Optimization: application to demand theory and production theory	Mathematics for Economists, Simon and Blume Chp. 4 -Calculus and its Applications Bittenger, Ellenbogen, and Surgent Chs 2.6 - Essential Mathematics for Economic Analysis, Sysaeter and Hammond Chs 7-8 Managerial Economics, Keat, Young and Erfle Chs 7
4	Single Variable Optimization: application to cost functions and output decision of the firm	Mathematics for Economists, Simon and Blume Chp. 4 -Calculus and its Applications Bittenger, Ellenbogen, and Surgent Ch 2.7 - Essential Mathematics for Economic Analysis, Sysaeter and Hammond Ch 8 - Managerial Economics, Keat, Young and Erfle Ch 8
5	HOLIDAY (29.10.2015)	
6	Single Variable Optimization: application to cost functions and output decision of the firm	Mathematics for Economists, Simon and Blume Chp. 4 -Calculus and its Applications Bittenger, Ellenbogen, and Surgent Ch 2.8 - Essential Mathematics for Economic Analysis, Sysaeter and Hammond Ch 8 - Managerial Economics, Keat, Young and Erfle Ch 8
7	Midterm Exam I	05.11.2015
8	Multivariable Calculus -using first derivatives and second derivatives to find maxima and minima - applications to economics and	Mathematics for Economists, Simon and Blume Chp. 14 -Calculus and its Applications Bittenger, Ellenbogen,

	finance	and Surgent Chs 6.1-6.3 - Essential Mathematics for Economic Analysis, Sysaeter and Hammond Ch 11
9	Multivariable Optimization	Mathematics for Economists, Simon and Blume Chp 17, Essential Mathematics for Economic Analysis, Sysaeter and Hammond Ch 13 Calculus and its Applications Bittenger, Ellenbogen, and Surgent Chs 6.4
10	Constrained Optimization	Mathematics for Economists, Simon and Blume Chp 18 - Essential Mathematics for Economic Analysis, Sysaeter and Hammond Ch 14
11	Midterm Exam II	10.12.2015
12	Simple Regression	Statistics for Business and Economics, Newbold, Carlson and Thorne, Ch 11
13	Multiple Regression	Statistics for Business and Economics, Newbold, Carlson and Thorne, Ch 12
14	HOLIDAY (31.12.2015)	

SOURCES

Course Notes / Textbooks	Mathematics for Economists, Carl P. Simon, Lawrance Blume. W.W. Norton & Company, Inc. (1994) - Managerial Economics, Keat, Young and Erfle, Pearson Publishing, 7th edition, Essential Mathematics for Economic Analysis, Sysaeter and Hammond, Prentice Hall, 3rd Edition, Calculus and its Applications, Bittenger, Ellenbogen, and Surgent, Pearson Publishing, 11th edition - Statistics for Business and Economics, Newbold, Carlson and Thorne, Pearson Publishing, 8th edition.
References	

EVALUATION SYSTEM

Semester Requirements	**Number**	**Percentage of Grade**
Attendance/Participation	15	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	**20**	**100**

PERCENTAGE OF SEMESTER WORK	**-**	**80**
PERCENTAGE OF FINAL WORK	**-**	**20**
Total	0	100

ACADEMIC HONESTY

Honesty and trust are the most fundamental pillars of learning and are necessary foundation for success and academic freedom in a university. Hence, any behavior that jeopardizes the learning environment by violating the rules of academic honesty will not be tolerated or condoned.
Violations of academic honesty include but are not limited to:

Cheating or facilitating cheating

- Looking or attempting to look at another student's answers or allowing others to copy one's answers
- Copying other student's in-class or take-home exam answers or letting others use take-home exam answers
- Using "cheat sheet," pre-programmed calculator if not allowed by the instructor
- Having someone else prepare the term project or homework or letting others use one's homework/term project/paper
- Assistance of another person in preparation of a term paper/homework/project if not allowed by the instructor
- Taking an exam for another student
- Purchasing term projects or homework or other assignments
- Signing in place of another student using their name/signature/student id number

Plagiarism

- Showing the work of another as one's own
- Not properly citing an earlier own work
- Submitting the same homework/paper/term project in one more one course if not allowed by the instructor
- Inaccurately or inadequately citing sources including those from the Internet

Violations of academic honesty can result in disciplinary action, as stated in the "Student Disciplinary Rules and Regulation" of the University.

http://www.ieu.edu.tr/en/bylaws/type/read/id/13 and
http://kariyer.ieu.edu.tr/en/bylaws/type/read/id/81

By enrolling in the University, each student is assumed to have read the rules and regulations regarding academic dishonesty, and lack of knowledge of this policy is not an acceptable defense.

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	1	31	31	
Homework Assignments	2	16	32	
Quizzes	-	-	-	
Midterms / Oral Exams	2	25	50	
Final / Oral Exam	-	-	-	
		Total Workload		**225**