



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Mathematical Economics							
Course Code		ECO307		Course Level		First Cycle (Bachelor's Degree)			
ECTS Credit	6	Workload	150 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The main aim of this course is to extend students' facility with those methods of mathematics needed to pursue economic analysis at intermediate level.							
Course Content		Rules, Introduction, Definitions, Nature of Economics, Modelling, Number Systems, Sets and Operations, Rules of Algebraic Expressions, Exponents and Logarithms, Binomial Expansion, Properties of Matrices, Matrix Addition, Subtraction and Multiplication, Matrix Inversion, Optimization: Optimum Value and Extreme Value, Relative Maxima and Minima, Non-constrained Optimization, Constrained Optimization.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)									

Prerequisites & Co-requisites

ECTS Requisite	70
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Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	Alpha CHIANG, Matematiksel İktisadın Temel Yöntemleri, Asil Yayın Dağıtım, Ankara, 2003.
2	Bernd LUDERER - Volker NOLLAU - Klaus VETTERS, İktisatçılar İçin Matematik, Palme Yayıncılık, 2011.

Week	Weekly Detailed Course Contents	
1	Theoretical	Rules, Introduction, Definitions
2	Theoretical	Nature of Economics, Modelling, Number Systems, Sets and Operations
3	Theoretical	Rules of Algebraic Expressions, Exponents and Logarithms, Binomial Expansion
4	Theoretical	Properties of Matrices, Matrix Addition, Subtraction and Multiplication, Matrix Inversion
5	Theoretical	Cramer's Rule, Economic Application of Matrix Algebra
6	Theoretical	Static Analysis : Single Commodity Market Model, National Income Model, Limitations of Static Analysis
7	Theoretical	Comparative Static Analysis: Implicit Function Theorem, Application of Comparative Static Analysis
8	Intermediate Exam	Midterm Examination
9	Theoretical	Derivatives and Differential Equations, Economic Application of Derivatives, Partial Differentiation
10	Theoretical	Optimization: Optimum Value and Extreme Value, Relative Maxima and Minima, Non-constrained Optimization, Constrained Optimization
11	Theoretical	Economic Application of Constrained and Non-constrained Optimization
12	Theoretical	Lagrangian Function and its Applications
13	Theoretical	Optimization with Equality Constraints, Utility Maximization and Consumer Demand
14	Theoretical	Indefinite Integrals, Definite Integrals, Economic Application of Integration
15	Theoretical	General Assessment
16	Final Exam	Final Examination
17	Final Exam	Examination

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Individual Work	14	0	5	70
Midterm Examination	1	15	1	16



Final Examination	1	21	1	22
Total Workload (Hours)				150
[Total Workload (Hours) / 25*] = ECTS				6
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Defines basic mathematical concepts.
2	Solves mathematical concepts.
3	Understands economic issues mathematically.
4	Explain micro and macro based theories within the framework of mathematical applications.
5	Analyze the nature of mathematical economics and the relationship between economic and econometric models.

Programme Outcomes (Economics)

1	It defines and evaluates the basic economic concepts, theories, and methods.
2	It offers a basic level of policy proposals towards current economic problems.
3	It analyzes in the context of economic and social events in a historical perspective.
4	It explains the role of economic actors (such as government, company, or household) in the economy.
5	It follows national and international economic indicators and developments and it uses economic knowledge and methods in different areas.
6	It provides methods, tools and techniques necessary for the modelling and analysis of economic data and evaluates outcomes accordingly.
7	It defines economic systems, decision-making, policies and problems and it provides feedback about them.
8	It benefits from other disciplines that contribute to economic basis and holds a basic knowledge of these disciplines.
9	It explains and comments on economic growth, development and productivity problems on basic grounds.
10	It provides sufficient know-how in sub-branches such as public economics, industry, agriculture, environment and natural resources, labor, knowledge and ownership of the economy, international finance, money, in political economy and econometrics.
11	It defines and evaluates the concept of business on basic grounds.
12	It provides a sufficient level of legal know-how that may be demanded from high skill labor in both public and private sectors.
13	It defines the role of innovation, creativity and technology in the dynamic global economy.
14	It shows skills that will be useful for future employment opportunities and the working environment.
15	It considers science as a rational individual with professional and ethical responsibility.

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3
P1	4	4	4
P5	3	3	3
P6	4	4	4
P8	3	4	3

