

# MATHEMATICAL ECONOMICS I

<b>1</b>	Course Title:	MATHEMATICAL ECONOMICS I
<b>2</b>	Course Code:	EKO3109
<b>3</b>	Type of Course:	Compulsory
<b>4</b>	Level of Course:	First Cycle
<b>5</b>	Year of Study:	3
<b>6</b>	Semester:	5
<b>7</b>	ECTS Credits Allocated:	5.00
<b>8</b>	Theoretical (hour/week):	3.00
<b>9</b>	Practice (hour/week):	0.00
<b>10</b>	Laboratory (hour/week):	0
<b>11</b>	Prerequisites:	No
<b>12</b>	Language:	Turkish
<b>13</b>	Mode of Delivery:	Face to face
<b>14</b>	Course Coordinator:	Prof. Dr. KADİR YASİN ERYİĞİT
<b>15</b>	Course Lecturers:	Prof.Dr. Mustafa Sevütekin, Doç.Dr. Kadir Yasin Eryiğit, Doç.Dr. Mehmet Çınar
<b>16</b>	Contact information of the Course Coordinator:	kyeryigit@uludag.edu.tr Uludağ Üniversitesi İktisadi ve İdari Bilimler Fakültesi Ekonometri A.B.D. 16059 Görükle/Bursa Türkiye Telephone: +90 224 2941135 Fax: +90 224 2941003
<b>17</b>	Website:	<a href="https://sites.google.com/a/sacit.org/eko3109/">https://sites.google.com/a/sacit.org/eko3109/</a>
<b>18</b>	Objective of the Course:	The goal of the course is to make students understand and be able to use the mathematics required for studying economics and econometrics at the undergraduate level. The course is split in two parts and this syllabus corresponds to the first part.
<b>19</b>	Contribution of the Course to Professional Development:	
<b>20</b>	Learning Outcomes:	
	<b>1</b>	To be able to calculate elasticities
	<b>2</b>	To be able to calculate growth rates
	<b>3</b>	To be able to understand The properties of exponential growth
	<b>4</b>	To be able to calculate Present value
	<b>5</b>	To be able to Understand derivatives as a representation of marginalist thinking
	<b>6</b>	To be able to Choose output level to maximize profits.
	<b>7</b>	To be able to understand The mathematical representation of basic economic principles and theories through economic models
	<b>8</b>	To be able to understand The elements of calculus used in marginal analysis
	<b>9</b>	To be able to understand The economic principles of unconstrained and constrained maximization and minimization

		<b>10</b>	To be able to apply differential and difference equation models in the study of economic growth, business cycles, and other dynamic behaviour.
<b>21</b>	Course Content:		
	<b>Course Content:</b>		
<b>Week</b>	<b>Theoretical</b>	<b>Practice</b>	
<b>1</b>	Utility maximization		
<b>2</b>	Comparative statistics		
<b>3</b>	Envelope theorem		
<b>4</b>	Cost functions		
<b>5</b>	Supply curves		
<b>6</b>	Consumer theory		
<b>7</b>	Interim elections (Mid-term exam )		
<b>8</b>	Multi-variant optimization		
<b>9</b>	Polynomials		
<b>10</b>	Differential equations		
<b>11</b>	Uncertainty		
<b>12</b>	Incomplete information		
<b>13</b>	Quadratic forms		
<b>14</b>	Continuity in multivariable function		
<b>22</b>	Textbooks, References and/or Other Materials:	Chiang, Alpha (1990), Fundamental Methods of Mathematical Economics, McGraw Hill Klein, Michael W. (2002), Mathematical Methods for Economics, Pearson Education	
<b>23</b>	Assesment		
<b>TERM LEARNING ACTIVITIES</b>		<b>NUMBE R</b>	<b>WEIGHT</b>
Midterm Exam		1	40.00
Quiz		0	0.00
Home work-project		0	0.00
Final Exam		1	60.00
Total		2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00	
Contribution of Final Exam to Success Grade		60.00	
Total		100.00	
Measurement and Evaluation Techniques Used in the Course			
<b>24</b>	<b>ECTS / WORK LOAD TABLE</b>		

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	2.00	28.00
Homeworks	2	10.00	20.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	25.00	25.00
Others	0	0.00	0.00
Final Exams	1	40.00	40.00
Total Work Load			155.00
Total work load/ 30 hr			5.17
ECTS Credit of the Course			5.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	5	4	5	4	3	4	5	3	4	5	3	0	0	0	0
ÖK2	3	4	5	3	4	5	3	4	5	3	4	5	0	0	0	0
ÖK3	4	4	5	3	4	5	3	4	5	3	3	4	0	0	0	0
ÖK4	3	4	5	3	4	3	5	3	4	5	3	3	0	0	0	0
ÖK5	3	4	5	3	4	5	5	5	5	3	4	5	0	0	0	0
ÖK6	4	5	3	5	4	3	5	4	5	3	4	5	0	0	0	0
ÖK7	3	5	5	4	3	5	4	3	5	4	3	5	0	0	0	0
ÖK8	4	3	5	4	5	3	4	3	5	5	5	4	0	0	0	0
ÖK9	4	5	3	4	4	3	5	4	4	5	4	3	0	0	0	0
ÖK10	4	5	3	3	4	5	5	4	5	3	5	4	0	0	0	0
<b>LO: Learning Objectives PQ: Program Qualifications</b>																
<b>Contribution Level:</b>	<b>1 very low</b>			<b>2 low</b>			<b>3 Medium</b>			<b>4 High</b>			<b>5 Very High</b>			