

DEPARTMENT OF ECONOMETRICS
UNDERGRADUATE PROGRAM CURRICULUM PLAN

The curriculum of the courses is prepared as follows.

- 1- Course details**
- 2- Learning outcomes**
- 3- Weekly topics and preparation**
- 4- Assessment Methods**
- 5- Workload and ECTS Calculation**
- 6- Program Learning Outcome Relationship**
- 7- Program outcomes**

FIRST YEAR	5
FIRST SEMESTER.....	5
Statistics I	5
Mathematics I	8
Basic Information Technologies	11
Introduction to Business	15
Basic Concepts of Law	18
Turkish Language I	22
Principles of Atatürk and History of Turkish Revolution I	26
Career Planning	30
Foreign Language I	34
German I.....	34
French I	37
English I	41
Chinese I.....	44
Russian I.....	48
Spanish I.....	51
SECOND SEMESTER.....	55
Statistics II	55
Mathematics II.....	58
Linear Algebra	61
Introduction to Economics	65
Scientific Research Methods	68
Turkish Language II	71
Principles of Atatürk and History of Turkish Revolution II	76
Career Development.....	79

Foreign Language II	83
German II	83
French II	86
English II	90
Chinese II	93
Russian II	97
Spanish II	100
SECOND YEAR	104
THIRD SEMESTER	104
Econometrics I	104
Mathematical Statistics	107
Operations Research I	111
Microeconomics	114
FOURTH SEMESTER	117
Econometrics II	117
Open-Source Programming	121
Operations Research II	124
Macroeconomics	128
THIRD YEAR	132
FIFTH SEMESTER	132
Applied Econometrics I	132
Univariate Time Series Analysis	135
SIXTH SEMESTER	138
Applied Econometrics II	138
Multivariate Time Series Analysis	142
FOURTH YEAR	145
SEVENTH SEMESTER	145
Multicriteria Decision Making	145
EIGHTH SEMESTER	149
Panel Data Econometrics	149
Elective Pool	152
Computer Applied Operations Research	152
Big Data	156
Multivariate Statistics	159
Dynamic Programming	162
Nonlinear Econometric Models	166
Simulation in Econometrics	169

Econometric Models and Methods	173
Econometric Estimation Methods	176
Economic Indicators	179
Finance Mathematics	183
Financial Econometrics	186
Entrepreneurship	189
Volunteering Activities	193
Goal Programming	196
Decision Support Systems	199
Categorical Data Analysis	203
Mathematical Models	206
Spatial Econometrics	210
Microeconometrics	213
Optimization	217
Game Theory	220
Sampling	224
Nonparametric Statistics	227
Project Management	230
Field Work	234
Chess	237
Internship	240
Stock Control Models	245
Estimation Theory	248
Supply Chain and Logistics Management	251
Applied Statistics	255
Applied Panel Data Analysis	258
Applied Time Series Analysis	262
Production Management	265
Analysis of Variance and Design of Experiments	269
Data Science	272
Data Visualization	275
Machine Learning	279
Supply Chain Management and Blockchain Applications	282
Growth Theories	286
Money and Banking	289
International Economics Theory	293
General Accounting	296

German III	Hata! Yer işareti tanımlanmamış.
Fransızca III.....	Hata! Yer işareti tanımlanmamış.
English III.....	Hata! Yer işareti tanımlanmamış.
Chinese III	Hata! Yer işareti tanımlanmamış.
Russian III	Hata! Yer işareti tanımlanmamış.
Spanish III	Hata! Yer işareti tanımlanmamış.
German IV	Hata! Yer işareti tanımlanmamış.
French IV.....	Hata! Yer işareti tanımlanmamış.
English IV	Hata! Yer işareti tanımlanmamış.
Chinese IV	Hata! Yer işareti tanımlanmamış.
Russian IV	Hata! Yer işareti tanımlanmamış.
Spanish IV	Hata! Yer işareti tanımlanmamış.
Faculty Non-Area Elective Courses	300
Econometrics I.....	300
Econometrics II	303
Open-Source Programming.....	307
Data Science.....	310
Data Visualization	313
Multicriteria Decision Making	317
Chess	320
University Non-Field Elective Courses	324
Statistical Literacy (Out-of-field Elective).....	324
Decision Analysis (Out-of-field Elective).....	327

FIRST YEAR

FIRST SEMESTER

Statistics I

Statistics I

Course Details				
Code	T	A	C	ECTS
311001012024	3	0	3	5
Course Name	Statistics I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	This course, which focuses on teaching fundamental statistical topics, consists of central tendency measures, measures of variability, probability, statistical distributions, and indices.			
Course Content	Introduction to Statistics: Definition and scope of statistics, Basic concepts of statistics, Data collection techniques, Variables and scales, Frequency distributions and graphs, Central tendency and dispersion measures, Random variables, Probability, Normal distribution, Random variables and statistical distributions, Indices.			
References	Newbold Paul (2008), İşletme ve İktisat için İstatistik, Literatür Turanlı Münevver ve Gürış Selahattin, Temel İstatistik, Der Yayınları Bülbül Şahamet (2013), Tanımlayıcı İstatistik, Der Yayınları Akdeniz Fikri (2013), Olasılık ve İstatistik, Akademisyen Kitapevi			
Planned Learning Activities and Teaching Methods	Lecture Question-Answer Sample Question Solution Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes

Upon completion of this course, the student will:

1	To be able to learn basic concepts and principles related to statistics.
2	To be able to gain the ability to summarize data with descriptive statistics and graphs.
3	To be able to learn basic information about probability and statistical distributions.
4	To be able to make index calculations
5	To be able to apply the learned techniques in Excel program.
6	To be able to comment on the shape of the distribution.
7	To be able to recognize data types.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to Statistics: Definition, Scope and Basic Concepts
2. Week	Scales, Statistical Series, Graphs
3. Week	Data Sources, Data Collection Techniques and Organization of Data
4. Week	Measures of Central Tendency in Simple, Frequency and Grouped Series
5. Week	Measures of Central Spread in Simple, Frequency and Grouped Series
6. Week	Measures of Skewness and Kurtosis
7. Week	Indices
8. Week	Indices
9. Week	Introduction to Probability: Basic Concepts, Permutation, Combination and Counting Rule, Probability of More than One Event
10. Week	Random Variable, Types of Random Variables, Probability Distribution
11. Week	Discrete Random Variables and Probability Distributions
12. Week	Continuous Random Variables and Probability Distributions
13. Week	Uniform Distribution, Normal Distribution
14. Week	Central Limit Theorem, Convergence to Normal Distribution and Applications

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00

Application/practical	1	2,00	2,00
Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	2	4	1	2	1	1	3	4
L.O.2	5	4	5	5	5	4	3	5	1	1	2	2
L.O.3	4	5	2	4	4	3	3	2	1	1	2	2
L.O.4	5	4	3	4	3	4	2	4	1	1	1	2
L.O.5	5	5	5	5	5	4	5	4	5	3	5	3
L.O.6	5	4	5	5	3	3	2	4	1	1	2	1
L.O.7	4	5	3	4	3	3	2	4	2	1	2	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Mathematics I

Mathematics I

Course Details				
Code	T	A	C	ECTS
1xx	3	0	3	5
Course Name	Mathematics I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim is to provide the ability to use basic mathematical concepts and methods.			
Course Content	It is the ability to comprehend basic mathematical concepts and methods and apply them in Social Sciences. Within the scope of the course content, Set Theory, Algebraic and Logarithmic Operations, Identities, Equations and Inequalities, Relation, Function and Functional Operations, Linear Functions, Nonlinear Functions, Sequences and Series, Limit, Derivative will be explained.			
References	Mustafa Aytaç, Mustafa Sevüktekin ve Erkan Işığışok (2013) Sosyal Bilimlerde Matematik, Ezgi Kitabevi. Alpha C. Chiang ve Kevin Wainwright (2005) Matematiksel İktisadın Temel Yöntemleri, Gazi Kitabevi, Çeviren Muzaffer Sarımeşeli ve Şenay Açıkgöz. Edward T. Dowling (2013) İşletme ve İktisat İçin Matematiksel Yöntemler, Schaum's Outlines, Nobel Yayın Dağıtım, Çeviren Murat Yıldırım ve Ömer Faruk Çolak. George B. Thomas, Maurice D. Weir ve Joel R. Hass (2011) Thomas Kalkülüs Cilt I-II, Pearson Education, Çeviri Editörü Mustafa Bayram.			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Discussion Question-Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to comprehend basic mathematical concepts and methods.
2	To be able to gain problem solving ability by gaining analytical thinking skills.
3	To be able to use mathematical concepts and the language of mathematics correctly.
4	To be able to apply mathematical methods to the fields of economics and business.
5	To be able to gain basic mathematical knowledge required for the preparation and analysis of econometric models.
6	To be able to gain sufficient knowledge and use theoretical and applied information.
7	To be able to solve problems related to the topics covered.

Weekly Topics and Preparation	
Week	Topics
1. Week	Set Theory
2. Week	Algebraic and Logarithmic Operations
3. Week	Identities, Equations and Inequalities
4. Week	Relations, Functions and Functional Operations
5. Week	Linear Functions
6. Week	Nonlinear Functions
7. Week	Sequences and Series
8. Week	Sequences and Series (Continued)
9. Week	Limit
10. Week	Limit (Continued)
11. Week	Derivative
12. Week	Derivative (Continued)

13. Week	Applications of Derivatives
14. Week	Applications of Derivatives (Continued)

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	2,00	14,00
Problem Solving	7	1,00	7,00
Self-study	14	2,00	28,00
Midterm (Self-study)	5	2,00	10,00
Final Exam (Self-study)	6	3,00	18,00
Reading	7	1,00	7,00
Assignments (Self-study)	3	4,00	12,00
Total			140,00
Total Workload / 30 (Hour)			4,63
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	5	4	3	2	3	2	4	3	3	2	3	3
L.O.3	4	3	4	3	4	3	3	4	4	5	4	5
L.O.4	3	3	3	5	5	3	3	5	4	2	4	4
L.O.5	4	4	4	5	4	3	3	4	4	4	4	3
L.O.6	3	2	2	4	3	2	3	3	3	3	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3
L.O.8	5	4	3	5	3	2	4	3	3	2	3	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Basic Information Technologies

Basic Information Technologies

Course Details				
Code	T	A	C	ECTS
1xx	2	2	3	4
Course Name	Basic Information Technologies			
Course Language	Turkish			

Course Level	Undergraduate
Course Type	Compulsory
Prerequisites	None
Course Objective	Ability to use the computer at a basic level (knowing the computer, preparing documents, preparing tables, preparing presentations, using the internet).
Course Content	Computer Hardware Units, Introduction to Windows, Control Panel Applications, Working with Files, Folders and Drivers, Windows Accessories, Introduction to Microsoft Word, Working with Documents and Texts, Formatting Operations, Adding Objects, Graphic and Picture Applications, Introduction to Microsoft Excel, Using Formulas in Excel, Cell and Page Formatting Operations, Data Operations: Sorting, Filtering, Alt Total, Creating Pivot Tables, Introduction to Microsoft Powerpoint and Preparing Presentations, Introduction to the Internet and Internet Explorer.
References	Temel Bilgi Teknolojileri, Ayşegül Koç, Kodlab Yüzer V. ve Okur R. (Editör), Temel Bilgi Teknolojileri Kullanımı 1, 2015, Anadolu Üniversitesi Atatürk Üniversitesi, Temel Bilgi Teknolojileri, 2019 Çelik L., Bilgisayar ve Temel Bilgi Teknolojileri, 2011, Maya Akademi Yayınları
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Theoretical Presentation Project Assignment
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to recognize basic computer hardware.
2	To be able to know and use Windows operating systems in general.
3	To be able to know and use Office programs in general.
4	To be able to access information and communicate on the internet.
5	To be able to use blogs, library source scanning, databases.
6	To be able to establish and solve model forms related to operations research, statistics, econometrics.

7	To be able to prepare and use editor and presentation programs in correspondence related to operations research, statistics and econometrics.

Weekly Topics and Preparation	
Week	Topics
1. Week	History of Computer
2. Week	Computer Hardware Units
3. Week	Introduction to Windows, Control Panel Applications
4. Week	Working with Files, Folders and Drivers
5. Week	Windows Accessories
6. Week	Introduction to Microsoft Word, Working with Documents and Texts
7. Week	Formatting Operations Object Insertion Operations
8. Week	Graphics and Picture Applications
9. Week	Introduction to Microsoft Excel Using Formulas in Excel
10. Week	Cell and Page Formatting Operations
11. Week	Data Operations: Sorting, Filtering, Alt Total
12. Week	Creating Pivot Tables
13. Week	Introduction to Microsoft PowerPoint and Preparing Presentations
14. Week	Introduction to Internet and Internet Explorer

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	7	2,00	14,00
Application/practical	5	1,00	5,00
Assignments (Self-study)	4	1,00	4,00
Assignments	5	2,00	10,00
Midterm (Self-study)	1	5,00	5,00

Final Exam (Self-study)	1	10,00	10,00
Total			108,00
Total Workload / 30 (Hour)			3,60
ECTS			4

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	5	5	5	5	5	5	5	5	5	5
L.O.2	4	3	5	4	4	5	4	5	5	5	5	3
L.O.3	5	5	4	5	5	5	5	5	5	5	5	5
L.O.4	4	5	4	5	5	5	5	5	5	5	5	5
L.O.5	4	5	5	5	5	5	5	5	5	4	5	4
L.O.6	4	5	3	5	4	4	4	4	4	4	4	4
L.O.7	5	5	5	5	5	4	5	4	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Introduction to Business

Introduction to Business

Course Details				
Code	T	A	C	ECTS
311001092024	3	0	3	4
Course Name	Introduction to Business			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	To explain the basic concepts of business. To inform students about the selection and establishment of the business location. To provide students with a logic that will enable them to look at businesses from a holistic perspective by explaining all the functions of the business in detail.			
Course Content	Historical Development of Business Science Relationship of Business Science with Other Sciences, Its Objectives and Responsibilities Classification of Businesses Establishment of Business Management Function Planning, Organizing Execution, Coordination and Control Marketing Function, Basic Marketing Concepts, Importance of Marketing Functions and Marketing Management Service Marketing, Marketing Research and International Marketing Financing Function, Definition, Financing Methods and Fund Sources According to Capital Source Accounting Function, Definition, Accounting Types, Resources Used in Accounting Information System Human Resources Management, Definition, Human Resources Planning, Wage and Wage Management Public Relations and Research-Development Function.			
References	Şimşek, Şerif (2008), Genel İşletme, Konya: Eğitim Akademi Yayınları Aktepe, Eyyüp (2009), Genel İşletme, Ankara: Nobel Yayınları Mirze, S. Kadri (2010). İşletme, İstanbul: Literatür Yayınları. Dursun, Esra & Demirel, Ayşe (2012). İşletme, Ankara: Yargı Yayınları.			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to comprehend the basic concepts of Business Science.
2	To be able to understand the place and importance of businesses in economic and social life.
3	To be able to understand businesses with the dimensions of inputs, outputs, processes, environment, systems and subsystems, to be able to relate these dimensions to each other and to the business.
4	To be able to explain the interaction of businesses with the environment, to understand the concepts of system, subsystems, open and closed systems, to be able to analyze the business with the system dimension.
5	To be able to recognize the basic functions of the business; marketing, finance, accounting, human resources, public relations, R&D, management, production.
6	To be able to define businesses as the basic components of economic life.
7	To be able to establish the connection between businesses and environmental actors (state, politics, education, unions, customers).

Weekly Topics and Preparation	
Week	Topics
1. Week	Historical Development of Businesses and Management
2. Week	Basic Concepts
3. Week	Objectives of Businesses
4. Week	Establishment of Businesses
5. Week	Growth Forms in Businesses
6. Week	Classification of Businesses
7. Week	Classification of Businesses
8. Week	Functions of Businesses (Management Function)

9. Week	Functions of Businesses (Production Function)
10. Week	Functions of Businesses (Marketing Function)
11. Week	Functions of Businesses (Finance Function)
12. Week	Functions of Businesses (Human Resources Function)
13. Week	Functions of Businesses (R&D Function)
14. Week	Functions of Businesses (Public Relations Function)

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Quiz	5	0,10	0,50
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	1	5,00	5,00
Final Exam (Self-study)	1	10,00	10,00
Pre-study	5	1,00	5,00
Midterm	1	0,50	0,50
Question and Answer	14	2,00	28,00
Discussion	14	2,00	28,00
Total			120,00
Total Workload / 30 (Hour)			4,00
ECTS			4

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	5	3	3	3	3	4	3	4	3	3
L.O.2	5	3	5	3	3	3	3	4	3	4	3	3
L.O.3	5	3	5	3	3	3	4	4	3	4	3	3
L.O.4	5	3	5	3	3	3	4	4	3	4	3	2
L.O.5	5	3	4	3	3	3	4	4	3	3	4	2
L.O.6	4	3	4	3	3	4	4	3	4	3	4	3

L.O.7	4	3	4	3	3	4	4	3	4	3	3	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Basic Concepts of Law

Basic Concepts of Law

Course Details

Code	T	A	C	ECTS
311001112024	3	0	3	4
Course Name	Basic Concepts of Law			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	It is aimed to provide information about what law is and what it should be, its basis, sources, application and interpretation, and general concepts, thus providing the ability to research legal issues and produce solutions.			
Course Content	Information sources of law, rules of social order, sources of law, branches of law, judicial organization, types of cases, application of legal rules, legal events, acts and transactions, concept of right, concept of sanction, personality, concept of responsibility, concept of debt, concept of property.			
References	Kayar, İ., & Üzülmöz, İ. (2008). Hukukun temel kavramları. Detay Yayıncılık Gözler, K. (1998). Hukuka giriş (pp. 313-315). Ekin Kitabevi Anayurt, Ö. (2001). Hukuka giriş ve hukukun temel kavramları. Seçkin yayıncılık Bilgili, F., & Demirkapı, E. (2014). Hukukun Temel Kavramları, 10. Basım, Dora Yayınları, Bursa.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the difference between law and other social order rules.
2	To be able to understand the relationship between law and other social order rules.
3	To be able to learn the basic functions of law.
4	To be able to learn the basic purpose of law.
5	To be able to learn sanctions in law, characteristics of legal rules and positive law.

6	To be able to learn the branches of law within the framework of the distinction between public law and private law.
7	To be able to learn about the application of law in terms of place and time, legal transactions and responsibility.

Weekly Topics and Preparation	
Week	Topics
1. Week	The framework of the Basic Concepts of Law course and basic information about legislation, judicial decisions, scientific works.
2. Week	Legal rules, moral rules, religious rules, etiquette; common points of social behavior rules and differences between them.
3. Week	The concept of sanction and types of sanctions.
4. Week	Legal systems.
5. Week	Written and unwritten sources of law.
6. Week	Distinction between public law and private law.
7. Week	Distinction between public law and private law.
8. Week	Legal event and legal act; legal transactions and types.
9. Week	The concept of personality, the capacities of the person, real and legal persons.
10. Week	Judicial organization and types of cases.
11. Week	Legal gap; interpretation of legal rules and their application in terms of place and time.
12. Week	The concept of right; types of rights, protection of rights.
13. Week	Definition, subject and scope of property rights; types of property rights.
14. Week	Concepts of responsibility and contract; concept of debt and debt relationship, sources of debt; provisions and consequences of debt.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	1	10,00	10,00
Final Exam (Self-study)	1	14,00	12,00
Midterm	1	1,00	14,00

Self-study	8	2,00	16,00
Reading	9	2,00	18,00
Total			113,00
Total Workload / 30 (Hour)			3,77
ECTS			4

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	3	2	3	3	3	2	2	3	2	2	4
L.O.2	3	3	2	3	3	3	2	2	4	2	2	4
L.O.3	4	2	3	4	2	3	3	3	4	2	2	5
L.O.4	4	2	3	4	3	2	3	3	3	3	3	5
L.O.5	4	3	3	4	3	2	3	3	3	3	3	5
L.O.6	4	3	3	4	3	3	3	3	3	2	2	5
L.O.7	4	3	3	4	3	3	3	3	3	2	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Turkish Language I

Turkish Language I

Course Details				
Code	T	A	C	ECTS
311001132024	2	0	2	2
Course Name	Turkish Language I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim of this course is to make students perceive the features and rules of the Turkish language and to show them with examples; to develop students' vocabulary through written and spoken texts; to provide students with the habit of obeying spelling rules and using punctuation marks in their proper places; to provide students with the habit of reading books; to provide students with the habit of scientific, critical, questioning, interpretive, creative and constructive thinking and to raise young people who have a mother tongue consciousness.			
Course Content	The concept of language. The place and importance of language as a social institution in national life. Language-culture relationship. The status of Turkish language among world languages and its spreading areas. Sounds in Turkish and their classification. Sound characteristics of Turkish and rules related to phonetics. Syllable information. Spelling rules and their application. Written expression.			
References	T. D.K (2007). Güncel Türkçe sözlük ve yazım kılavuzu etkileşimli yoğun disk. Ankara: Türk Dil Kurumu Yayınları. Eker, S. (2002). Çağdaş türk dili (Vol. 3). Grafiker Yayınları. Uçar, İ. (2001). İletişim beden dili ve sunum teknikleri. [Yy](Cantekin Matbaacılık). Aksan, Doğan. Her yönüyle dil:(ana çizgileriyle dilbilim). Vol. 1. Türk Dil Kurumu Yayınları, 1977.			

	Kavcar, C., Oğuzkan, A. F., & Aksoy, Ö. (2012). Yazılı ve sözlü anlatım. Anı yayıncılık. Çotuksöken, Y. (2001). Uygulamalı Türk dili: üniversite öğrencileri için (Vol. 2). Papatya Yayıncılık. Gülensoy, T. (2000). Türkçe el kitabı. Akçağ.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn the function of words in oral and written expression.
2	To be able to understand the importance of correct syntax in Turkish sentences.
3	To be able to analyze sentences and passages selected from literary texts and books.
4	To be able to understand the types and characteristics of written expression.
5	To be able to understand the types and characteristics of oral expression.
6	To be able to learn the rules of official writing such as petitions, reports, private letters and business letters, CVs.

Weekly Topics and Preparation	
Week	Topics
1. Week	General Language Culture: Definition of communication, basic elements of communication and effective communication. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and impromptu speeches.
2. Week	General Language Culture: Definition and characteristics of language, place and importance of language in our social life. Language-thought, language-nation, language-culture connection; definition of culture. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Punctuation marks (Period, comma, semicolon, colon, ellipsis).
3. Week	General Language Culture: Languages in the world, world languages in terms of source (origin), world languages in terms of structure, language differentiation; written language, spoken language (dialect, accent, mouth). Text Writing

	Formats: Petition writing. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Punctuation marks (Parentheses, square brackets, apostrophes, quotation marks).
4. Week	General Language Culture: The place of Turkish among world languages, the history of the Turkish language. Text Writing Styles: Writing a CV. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Punctuation marks (slash, hyphen, em dash, correction mark, exclamation mark).
5. Week	General Language Culture: Development of Turkish language (historical periods of Turkish); Altai Period, Oldest Turkish, First Turkish, Old Turkish. Gokturk Inscriptions. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
6. Week	General Language Culture: Development of Turkish language (historical periods of Turkish); Middle Turkish, Karahanlı Turkish, Khwarezm Turkish, Kuman-Kypchak Turkish, Old Anatolian Turkish, Chagatai Turkish. Divanü Lûgati't-Türk, Kutadgu Bilig, Divan-ı Hikmet, Yunus Emre, Ali Şir Nevaî, Muhakemetü'l-Lûgateyn. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and impromptu speeches.
7. Week	General Language Culture: Development of Turkish Language (Historical Periods of Turkish); New Turkish, Modern Turkish. Dialects of Turkish, Accents of Turkish, Dialect. Current status of Turkish Language and areas of spread, alphabets used by Turks until today, linguistics (Phonetics, root information, syntax information, semantics). Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and impromptu speeches.
8. Week	Grammar: Phonetics. Sounds in Turkish and their classification, general sound characteristics of Turkish, syllable structure of Turkish, word stress. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
9. Week	Grammar: Phonetics Sound events; sound derivation, sound deletion, vowel change, assimilation. Main sound harmony in Turkish words (thickness-thinness harmony, flatness-roundness harmony, consonant harmony) Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches.
10. Week	Grammar: Words in terms of meaning and functions. Nouns, pronouns. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
11. Week	Grammar: Words in terms of meaning and functions. Nouns, pronouns. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and

	unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
12. Week	Grammar: Words in terms of meaning and function. Adjectives, adverbs. Oral and Written Expression Studies: Presentation, poem, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
13. Week	Grammar: Words in terms of meaning and function. Prepositions, gerunds. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
14. Week	Grammar: Words in terms of meaning and function. Verbs; verb conjugations, verb tenses, person in verbs. Auxiliary verb, compound conjugation of verbs, voice in verbs. Verbs according to their structures, auxiliary verbs, compound verbs. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	2,00	28,00
Self-study (Pre-class)	14	2,00	28,00
Self-study (Post-class)	14	1,00	14,00
Total			72,00
Total Workload / 30 (Hour)			2,40
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	5	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	3	2	4	5	3	3
L.O.4	4	4	4	5	5	4	3	3	5	5	5	3

L.O.5	4	5	5	5	5	5	2	3	5	5	5	3
L.O.6	3	5	5	5	5	5	2	2	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Principles of Atatürk and History of Turkish Revolution I

Principles of Atatürk and History of Turkish Revolution I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Principles of Atatürk and History of Turkish Revolution I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	At the end of this course, the student will be able to explain and interpret concepts related to Atatürk's Principles and Revolutionary History, the Ottoman Modernization process, the New Ottomans, the First and Second Constitutional Monarchy Periods, parallel developments in Europe (such as the Industrial Revolution and the French Revolution), the First World War and its results, the Armistice of Mudros and subsequent developments, the Congresses within the scope of the National Struggle, the National Pact decisions taken by the Last Ottoman Assembly of Deputies, the TBMM Period, the Fronts and the Mudanya Armistice, the Foreign Policy followed in the National Struggle and finally the 1923 Lausanne Peace Treaty.			
Course Content	The period is examined under the main headings of concepts, definitions, course methods and definition of resources, Industrial Revolution and French Revolution, Dissolution of the Ottoman Empire (19th Century), Tanzimat and Islahat Edict, I. and II. Constitutional Monarchy, Tripoli and Balkan Wars, World War I, Armistice of Mudros, Wilson Principles, Paris Conference, Mustafa Kemal Pasha's Arrival in Samsun and the Situation in Anatolia, Amasya Circular, National Congresses, Opening of the Last Ottoman Assembly of Deputies, Establishment of the TBMM and Internal Revolts, Constitutional Law, Establishment of the Regular Army, I. and II. İnönü and Kütahya-Eskişehir and Sakarya Field Battles, Great Offensive, Treaties during the War of Independence, Treaty of Lausanne, Abolition of the Sultanate.			
References	1. Atatürk, Mustafa Kemal, Nutuk, Ankara 1997. 2. Kodaman, Bayram, Cumhuriyetin Tarihi-Fikrî Temelleri ve Atatürk, Isparta 2001. 3. Mumcu, Ahmet, Tarih Açısından Türk Devriminin Temelleri ve Gelişimi, Ankara 1971. 4. Baykara, Tuncer, Türk İnkılap Tarihi ve Atatürk İlkeleri, İstanbul 2006. 5. Aybars, Ergun, Türkiye Cumhuriyeti Tarihi I-II, İzmir 2005. 6. Komisyon, Türkiye Cumhuriyeti I-II Atatürk Araştırma Merkezi Yayını 7. Komisyon, Atatürk İlkeleri ve İnkılap Tarihi I /1, I/2, II, YÖK Yayını 8. Derviş Kılınçkaya (ed): Atatürk ve Türkiye Cumhuriyeti Tarihi. Siyasal Kitabevi, Ankara, 2004. 9. Ahmad, Feroz, Modern Türkiye'nin Oluşumu, İstanbul, 1995. 10. Atatürk'ün Söylev ve Demeçleri, 3 cilt, Ankara, 1981. 11. Atatürk'ün Tamim Telgraf ve Beyannameleri, 4 cilt, Ankara, 1964. 12. Bayur, Yusuf Hikmet, Türk İnkılâp Tarihi, 10 cilt, Ankara, 1991. 13. Berkes, Niyazi, Türkiye'de Çağdaşlaşma, Ankara, 1978. 14. Karpaz, Kemal, H., Türk Demokrasi Tarihi, İstanbul, 1967. 15. Lewis, Bernard, Modern Türkiye'nin Doğuşu, Ankara, II. Baskı, 1984. 16. Mumcu, Ahmet, Tarih Açısından Türk Devriminin Temelleri ve Gelişimi -, Ankara, 1974. 17. Zürcher, E. J., Modernleşen Türkiye'nin Tarihi, İstanbul, 1999.			

Planned Learning Activities and Teaching Methods	Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn the modernization movements in the last period of the Ottoman Empire.
2	To be able to understand the intellectual movements seen in the last period of the Ottoman Empire.
3	To be able to learn the First World War and its fronts.
4	To be able to explain the organization of the National Struggle.
5	To be able to learn the fronts of the National Struggle.

Weekly Topics and Preparation	
Week	Topics
1. Week	III. From Selim to the Union and Progress period, modernization movements in the Ottoman Empire
2. Week	Ideological movements seen in the last period of the Ottoman Empire: Ottomanism and Islamism
3. Week	Ideological movements seen in the last period of the Ottoman Empire: Turkism and Westernism
4. Week	World War I and the party countries
5. Week	Fronts fought by the Ottoman Empire in World War I
6. Week	Fronts fought by the Ottoman Empire in World War I: Caucasus and Çanakkale fronts
7. Week	Mudros Armistice
8. Week	The period of the National Struggle
9. Week	Societies supporting the National Struggle
10. Week	Societies supporting the National Struggle
11. Week	Societies opposing the National Struggle

12. Week	Mustafa Kemal's arrival in Samsun, Havza and Amasya circulars, Erzurum and Sivas Congresses
13. Week	Opening of the Turkish Grand National Assembly, Eastern and Southern fronts
14. Week	Western front in the National Struggle: Battles of İnönü, Battles of Kütahya and Eskişehir, Battle of Sakarya, Great Offensive and Armistice of Mudanya

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	2,00	28,00
Midterm	1	2,00	2,00
Self-study	14	2,00	28,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	3	2	3	3	3	2	2	3	2	2	4
L.O.2	3	3	2	3	3	3	2	2	4	2	2	4
L.O.3	4	3	3	4	2	3	3	3	4	2	2	5
L.O.4	4	3	3	4	3	2	3	3	3	3	2	5
L.O.5	4	3	3	4	3	2	3	3	3	3	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Career Planning

Career Planning

Course Details				
Code	T	A	C	ECTS
1xx	1	0	1	2
Course Name	Career Planning			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim of this course is to help students observe the problems of the society they live in and to fulfill their responsibilities towards society through teamwork and individual initiative.			
Course Content	The concept of career, career planning and stages; individual career development, creating a career strategy; career planning model, career			

	options, career trends, career management; preparing a resume and types of resumes, CV format and samples, points to consider in preparing a CV; cover letters, introductory letters, job interviews, purposes, methods and types, preparation for interviews and interview stages; situations that may be encountered in interviews; question types, body language-physical signs; job search methods, things to consider in job applications, domestic and international job application methods, the effect of the social environment on career development, the effect of social networks on career development, 21st century competencies and career, sample success stories.
References	Öztemel, K. (2019). Kariyer planlama ve geliştirme. Ankara: Pegem Yayıncılık. Sevinç, E. (2010). Kariyer planlama ve yönetimi. Etap Yayınları, İstanbul. Dağdeviren, O. (2017). Kariyer Kitabı – Doğru İş Bulma ve “Kurumsal Hayatta Kalma” Rehberi, Abaküs Kitap. Canbulut, İ. (2021). Zirvedeki Seni Bul – Üniversite Öğrencileri İçin Kariyer Rehberi, Ceres Yayınları.
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Discussion Project Based Learning
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to explain the concept of career.
2	To be able to communicate effectively in business life.
3	To be able to analyze career options in related fields.
4	To be able to understand the importance of career planning.
5	To be able to understand the importance of the preparation process for business life.
6	To be able to start the process of planning their own careers in line with their education and skills.
7	To be aware of the job opportunities they may have.
8	To be able to direct their career in accordance with scientific and ethical values, aware of sustainability.

Weekly Topics and Preparation	
Week	Topics
1. Week	What is career?
2. Week	Creating a career goal
3. Week	Career planning and management
4. Week	National and international exchange programs
5. Week	Basic communication skills
6. Week	Soft skills
7. Week	Diction and body language
8. Week	Preparing a resume and cover letter
9. Week	Effective Presentation Techniques
10. Week	Job search methods
11. Week	Effective interview techniques
12. Week	Domestic and international job application methods
13. Week	The impact of social environment and social networks on career development
14. Week	21st century competencies and career

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Course Participation	8	4,00	32,00
Application/practical	1	8,00	8,00
Final Exam (Self-study)	1	8,00	8,00
Reading	3	5,00	15,00
Total			63,00
Total Workload / 30 (Hour)			2,10
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	2	4	2	1	3	4	2	1	2	3
L.O.2	2	3	5	4	3	2	2	6	3	3	2	4

L.O.3	4	3	3	5	4	3	3	4	2	2	3	3
L.O.4	3	2	2	4	3	2	4	3	2	1	2	4
L.O.5	3	3	4	5	4	3	3	5	3	2	3	4
L.O.6	4	5	3	4	5	3	3	4	2	2	3	3
L.O.7	4	4	2	4	4	2	3	3	2	2	2	3
L.O.8	2	3	3	4	3	3	4	3	3	2	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Foreign Language I

German I

German I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	German I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic German structure, vocabulary and communication skills. The course provides students with the opportunity to learn German grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their German vocabulary. Studies are conducted to expand their basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in German listening material. Students are provided with the skills to read and understand German texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic German communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, getting to know each other, giving information, asking questions. It also provides basic information about the cultural differences and traditions of German-speaking countries.			
Course Content	This course includes teaching basic German grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.			
References	Menschen: Deutsch als Fremdsprache A1 1: Kursbuch [mit Lerner-DVD-ROM], Evans, S., Pude, A., & Specht, F.(2012) Hueber Verlag.			
Planned Learning Activities and Teaching Methods	Lecture, Theoretical Presentation, In-Class Discussions, Out-of-class Readings, Article and Book Reviews, Presentations, Online resources and videos related to the course.			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Distance Learning			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Module 1/ Lektion 1 Hallo! Ich bin Nicole... Listening/speaking: greeting/saying goodbye; introducing yourself and others / Pleiades and alphabet / Verb conjugation (singular); W questions
2. Week	Module 1/ Lesson 2 Ich bin Journalistin. Speaking: talking about your profession and personal issues / Reading: Business cards, Internet Profile Writing: a profile about yourself / writing a short text / Numbers 1-100 / singular and plural negation; verb conjugation / Word formation -in
3. Week	Module 1/ Lesson 3 Das ist meine Mutter Speaking: talking about family and language skills / yes - no questions - possessive pronouns / vowel changes
4. Week	Module 1/ Lesson 3 Das ist meine Mutter Speaking: talking about family and language skills / yes - no questions - possessive pronouns / vowel changes / Written Assignment 1
5. Week	Module 2/ Lesson 4 Der Tisch ist schön Speaking: asking for prices and bid prices; to evaluate something / Numbers: 100 - 1,000,000 / Furniture / Adjectives / Personal pronouns
6. Week	Module 2 / Lesson 5 Was ist das? – Das ist ein F. Speaking: asking and saying words; expressing a wish again; describing something; giving thanks / Reading: reading Product Information / Writing: filling in a form / Colors / Indefinite Article and negative form
7. Week	Module 2 / Lesson 6 Ich brauche kein Office Listening: Phone conversations / Speaking: Phone strategies / Reading: Email and SMS / Singular-plural Articles
8. Week	Module 3 / Lesson 7 Du kannst wirklich toll...! Listening: expressions about free time activities / Speaking: giving a compliment; talking about hobbies / skills; asking for something; giving thanks / Modal verb = können
9. Week	Module 3 / Lesson 8 Kein Problem. Ich habe Zeit! Speaking: making an appointment; making and responding to a suggestion / Reading: SMS, Chat Letter: invitation / rejection / Days and times / Adverbs of time; Prepositions: im/um
10. Week	Module 3 / Lesson 9 Ich möchte was essen Onkel Harry. Listening: Talking about food preferences / Speaking: Talking about eating habits / Reading: Comics / Conjugations of verbs mögen and möchten
11. Week	Module 4 / Lesson 10 Ich steige jetzt in die U-Bahn ein. Speaking: informing oneself; ending a phone call / Travel; means of transport / Separable verbs

12. Week	Module 4 / Lesson 11 Was hast du heute gemacht? Speaking: talking about the past / Reading: appointment calendar, e-mail / Writing: describing a daily routine / Daily activities / Prepositions: ab / von ... bis / Past with haben
13. Week	Module 4 / Lesson 11 Was hast du heute gemacht? Speaking: talking about the past / Reading: appointment calendar, email / Writing: describing a daily routine / Daily activities / Prepositions: ab / von ... bis / Past with haben / Written Assignment 2
14. Week	Module 4 / Lesson 12 Was ist denn hier passiert? Speaking: talking about celebrations and travel / Reading: information texts / Seasons; months / Past with sein / Prepositions: im

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Application/practical	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

French I

French I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	French I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			

Prerequisites	None
Course Objective	This course aims to develop students' basic French structure, vocabulary and communication skills. The course provides students with the opportunity to learn French grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their French vocabulary. Studies are conducted to expand basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in French listening material. Students are provided with the skills to read and understand French texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic French communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about cultural differences and traditions of French-speaking countries.
Course Content	This course includes teaching basic French grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.
References	Tendances: Méthode de français, Girardet, J., Pécheur, J., Gibbe, C., & Parizet, M.-L.: CLE international, 2016, Paris Tendances Méthode de français Cahier d'activités A 1, Grammaire Progressive du Français, Paris: CLE international. Girardet, J., Pécheur, J., Grégoire. avec la participation de Gracia Merlo.
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics

1. Week	Unit 0 / Leçon 1-2-3 / Commencez en français Listening: Introducing yourself and someone else Reading: Numbers 1 to 10 in French Speaking: French guidelines and usage Writing: Polite expressions Intimate and formal forms of address
2. Week	Unit 1 / Leçon 1-2 / Arrivée dans un pays francophone Listening: Introducing someone (learn their nationality, age, profession, place of residence, etc.) Reading: Conjugations of group 1 regular verbs ending with "Être" and "-er" in the present tense, Féminin and Masculin Definite, indefinite and compound articles (le ,la, l', les, un ,une, des, du, de la, de l', des) Writing: Learning the negative structure Speaking: Connaitre, Comprendre and Écrire verbs with Qui, Que, Où, Comment and Quel patterns Questions and answers
3. Week	Unit 1 / Leçon 3 / Arrivée dans un pays francophone Listening: Introducing a person (learning their nationality, age, profession, place of residence, etc.) Reading: Conjugations of group 1 regular verbs ending with "Être" and "-er" in the present tense, Féminin and Masculin Definite, indefinite and compound articles (le ,la, l', les, un ,une, des, du, de la, de l', des) Writing: Learning the negative structure Speaking: Connaitre, Comprendre and Écrire verbs Qui, Que, Où, Comment and Quel patterns and questions and answers
4. Week	Unit 1 / Leçon 4 / Arrivée dans un pays francophone Listening: Introducing a person (learning their nationality, age, profession, place of residence, etc.) Reading: Conjugations of group 1 regular verbs ending with "Être" and "-er" conjugations according to present tense, Feminine and Masculin Definite, indefinite and compound articles (le, la, l', les, un, une, des, du, de la, de l', des) Writing: Learning the structure indicating negation Speaking: Connaitre, Comprendre and Écrire verbs Qui, Que, Où, Comment and Quel patterns and question-answer
5. Week	Unit 2 / Leçon 1 / Découvrir une ville Reading: Understanding directions, Writing: Aller verb, Listening: French numbers from 11 to 60 and ordinal numbers, Speaking: Giving directions.
6. Week	Unit 2 - Leçon 2 / Trouver une adresse Reading: Understanding the address Writing: Adverbs of place and direction Adjectives that come before a noun
7. Week	Unit 2 – Leçon 3 / Faire une rencontre Listening: Starting a conversation Speaking: Questions with "Est-ce que" and intonation Answering with "Si, Oui and Non" A conversation to get acquainted at work Writing: Verbs Venir, Voir, Dire
8. Week	Unit 2 – Leçon 4 / Connaître les manifestations de l'année Reading: Understanding the calendar (Months, days and seasons) Listening: Understanding the dates of plans Speaking: Asking and telling the dates Writing: Numbers between 60-1000 The verbs Parler, Travailler and Écouter
9. Week	Unit 2 – Projet / Présenter une ville Reading: Introduction of a city The structure "Il y a"
10. Week	Unit 2 – Outils Reading and Writing: Activities related to grammar topics learned in Unit 2
11. Week	Unité 3 – Leçon 1 / Vivre dans une famille Listening: Introducing your family using possessive adjectives Reading: Indicating family members
12. Week	Unité 3 – Leçon 2 / Organiser son temps Listening: Understanding your date of birth Writing: Avoir and Faire verbs Reading: Understanding the information in a brochure

13. Week	Unité 3 – S’informer sur un horaire Listening: Learning about hours Writing: Commencer, Fermer, Ouvrir and Finir verbs Speaking: Questions and answers about the working hours of institutions
14. Week	Unité 3 – Leçon 3 / Prendre de nouvelles habitudes Leçon 4 / S’adapter à un rythme de vie Reading: A form on the website Speaking: Expressing your hobbies, dislikes and daily habits Writing: Prendre, Comprendre and Apprendre verbs Reflexive verbs (with Se)

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Application/practical	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

English I

English I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	English I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic English structure, vocabulary and communication skills. The course provides students with the opportunity to			

	learn English grammar rules and basic structures. Basic grammar topics such as English verb conjugations, pronouns, adjectives, adverbs, prepositions and conjunctions are covered. The course teaches students different vocabulary learning strategies to increase their English vocabulary. Studies are conducted to expand basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in English listening material. Students are taught the skills of Reading and understanding English texts, then creating their own written texts. Basic Reading strategies and writing techniques are covered. It teaches students basic English communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, getting to know each other, giving information and asking questions. It also provides basic information about the cultural differences and traditions of English-speaking countries.
Course Content	This course includes teaching basic English grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.
References	eBook
Planned Learning Activities and Teaching Methods	Lecture, Theoretical Presentation, In-Class Discussions, Out-of-class Readings, Article and Book Reviews, Presentations, Online resources and videos related to the course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills at A1 level.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Occupations / Singular - Plural Nouns / This - That
2. Week	Countries and Nationalities / to be / Personal Information / Times
3. Week	Present Simple Tense
4. Week	Conjunctions: and – but – because

5. Week	Family Members / have-has got / Quantifiers
6. Week	Object Pronouns/ a – an – the
7. Week	There is – There are / Directions / Parts of a house
8. Week	Prepositions of Place
9. Week	Present Continuous Tense
10. Week	Months of the Year / Dates / Seasons / Can-Can't
11. Week	Prepositions of Time / Past Simple Tense
12. Week	Past Simple: to be (was – were) / Vocabulary: Travel
13. Week	Future (be going to) / Everyday Expressions at the Chemist's
14. Week	Countable - Uncountable Nouns / Food Names

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Application/practical	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Chinese I

Chinese I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Chinese I			
Course Language	Turkish			

Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	The aim of this course, which is the first step of Mandarin Chinese (the language of Chinese painting), HSK (Chinese Proficiency Exam for Foreigners) Level 1, is to provide the student with the ability to express herself (written / verbal) and understand (written / verbal) in situations that may be necessary in daily life.
Course Content	Students learn about the basics of Chinese pronunciation: consonants, vowels, tones, and changes in tones. They also learn about the rules for writing Chinese characters. They become able to express themselves in daily life in matters such as greeting, asking how someone is, expressing their needs, asking about nationality, getting to know someone, asking for permission, asking for an address/place, saying goodbye, and giving advice.
References	New Practical Chinese Reader Textbook-1, Beijing Language and Culture University Press, LUİ Xun, 2. Kez baskısı, 2017; New Practical Chinese Reader Workbook-1 , Beijing Language and Culture University Press, LUİ Xun, 2. Kez baskısı, Ocak 2017
Planned Learning Activities and Teaching Methods	Lecture, Theoretical Presentation, In-Class Discussions, Out-of-class Readings, Article and Book Reviews, Presentations, Online resources and videos related to the course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have learning and expressing the patterns of greeting, introduction, farewell, learning the place, apologizing, thanking, expressing requests and making offers.
2	To be able to have learning the entire Chinese vocalization system and being able to apply the vocalization change rules correctly during speaking.
3	To be able to have learning the writing rules of Chinese characters and being able to write all the visible characters.
4	To be able to have learning and expressing verbal sentences, adjective sentences and abbreviated sentences.
5	To be able to have singing a song, understanding and memorizing a poem.

Weekly Topics and Preparation

Week	Topics
1. Week	Vowels and consonants, Intonations
2. Week	Order of words in a Chinese sentence, Pronunciation practice, Greetings
3. Week	Vowels and consonants, Syllable without tone, Adjective sentence, ‘吗’ question sentence
4. Week	Pronunciation practice, Asking for needs, Basic lines of Chinese characters
5. Week	Vowels and consonants, 3rd tone change, ‘不’ tone change, Pronunciation practice
6. Week	Getting to know a person, Asking for nationality, Chinese characters
7. Week	Vowels and consonants, ‘是’ sentence
8. Week	Pronunciation practice, Asking for name, Asking permission, Introducing yourself, Chinese character writing rule
9. Week	Vowels and consonants, ‘儿’ suffix, Making a question sentence with question pronoun
10. Week	Pronunciation practice, Asking for direction, Calling someone, Saying goodbye, Thanking
11. Week	Combined line of a Chinese character, Informing Chinese number, year, month, day and week names
12. Week	Mandarin Chinese Pinyin list, Verb sentence
13. Week	Repeating, Asking for repetition
14. Week	Evaluating, Recommending, Politely rejecting

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Application/practical	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Russian I

Russian I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Russian I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic Russian language structure, vocabulary and communication skills. The course provides students with the opportunity to learn the rules and basic structures of Russian grammar. The course teaches students different vocabulary learning strategies to increase their Russian vocabulary. Activities are carried out to expand their basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in Russian listening material. Students are taught the skills to read and understand Russian texts and then to create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic Russian communication skills that they can use in everyday life. Focusing on everyday communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about the cultural differences and traditions of Russian-speaking countries.			
Course Content	Teaching the Cyrillic alphabet effectively, ensuring that students gain skills in greeting, introduction and farewell.			
References	ДАВАЙТЕ УЧИТЬ РУССКИЙ ЯЗЫК А1.1			
Planned Learning Activities and Teaching Methods	Lecture, Theoretical Presentation, In-Class Discussions, Out-of-class Readings, Article and Book Reviews, Presentations, Online resources and videos related to the course.			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Distance Learning			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Teaching the alphabet, general information about Russian and Russia. Teaching letters with their Turkish equivalents, Writing and reading words and proper names in Cyrillic letters, Teaching the Russian noun system
2. Week	Teaching phonetic rules and pronunciation, Teaching Russian words used in different meanings in Turkish, Teaching silent letters
3. Week	Teaching “Да/Her” Yes/No question patterns, Teaching animate and inanimate nouns, Teaching personal pronouns, Where is “Где?” question and teaching adverbs of situation
4. Week	“Город” Conducting a study on the subject of the city, Listening to dialogues, Teaching conjunctions, -ve, -ise, -de, -or, Formal and informal greetings and self-introduction expressions, Teaching greeting, farewell expressions
5. Week	“комната” Conducting a study on the subject of my room, Reading dialogues, Teaching numbers up to 20, Teaching telephone numbers
6. Week	Teaching genders of nouns, “Когда?” When? Teaching time zone expressions with question form, Teaching days of the week, seasons
7. Week	Teaching possessive pronouns, Teaching family members
8. Week	Teaching possessive pronouns in accordance with genders Чей, Чья, Чьё, Чьи questions
9. Week	My var/ Who is var? Teaching expressions
10. Week	Teaching professions
11. Week	Text reading exercise
12. Week	Teaching plurals of nouns, Teaching the use of possessive pronouns with plurals
13. Week	Teaching the use of the question “Чей?Чья?чьё?чьи?” Whose? with plurals,
14. Week	Providing the student with the ability to describe himself and his family

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Application/practical	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Spanish I

Spanish I

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Spanish I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic Spanish structure, vocabulary and communication skills. The course provides students with the opportunity to learn Spanish grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their Spanish vocabulary. Studies are conducted to expand basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in Spanish listening material. Students are provided with the skills to read and understand Spanish texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic Spanish communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about cultural differences and traditions of Spanish-speaking countries.			
Course Content	This course includes teaching basic Spanish grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.			

References	“Sí, hablo español” (A1) kitabı. Yazarlar: Jesús García García, Carles İsern İñigo. İSTEK yayınları. 2018
Planned Learning Activities and Teaching Methods	Lecture, Theoretical Presentation, In-Class Discussions, Out-of-class Readings, Article and Book Reviews, Presentations, Online resources and videos related to the course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction. Greeting. Farewell. Pronunciation, Simple questions and answers.
2. Week	Main Purpose of Communication: To explain who we are. Personal pronouns. Introduction. Personal Information, Alphabet.
3. Week	Professions, countries and nationalities. Gender (masculine, feminine). Singular and plural. Verbs: To name, To be and To be, To have.
4. Week	Numbers (0-100) Verbs: To name, To be and To be, To have. Present Tense in Indicative Mood: Regular Verbs –ar, -er, -ir. Spanish nouns.
5. Week	Main Purpose of Communication: To explain what I want to do, its reasons and consequences. To want + infinitive. To want + why (for...because...by means of) Definite and indefinite article (el, la, los, las).
6. Week	Regular verbs in the present tense: -ar, -er, -ir. To want + infinitive. To want + why (for...because...by means) Days of the week.
7. Week	Regular verbs in the present tense: -ar, -er, -ir. Definite and indefinite prepositions (el, la, los, las). To want + infinitive. To want + why (for...because...by means) Days of the week.
8. Week	Main purpose in communication: Talking and writing about different places. Getting to know Latin America, touristic places we should know, Hay # Estar #

	Ser # Tener, (To be, to be, to exist, to have). Un, una, unos, unas. (Indefinite preposition definitions).
9. Week	Hay # Estar # Ser # Tener (To be, to be, to exist, to have). El tiempo. (The air). Muy #mucho,a,os,as. (A lot).
10. Week	Questions and answers. ¿Qué...?. ¿Cuál...?. ¿Cuáles...?. ¿Dónde...?. ¿Cuánto...?. What?, Which?, Which ones? How much?
11. Week	El más..., la más..., los más..., las más...; el menos..., los menos..., las menos... (Superlative degree).
12. Week	Communication basic purpose: Shopping in a store. Llevar, preferir, tener (to wear, prefer, have). Colors. Adjetivos y pronombres demostrativos. (Demonstrative adjectives and pronouns). Dialogue in a store. (waiter # customer). Vocabulary: clothes.
13. Week	Dialogue in a store. (between waiter and customer). Demonstrative adjectives and pronouns.
14. Week	El / La / Los / Las + adjective. What + noun Which / Which ones. Colors. Tener que + infinitive. Verb to have + infinitive. Verb to prefer. Verbs ending in -IR. Numbers: 100 – 1,000,000. ¿Qué...? ¿Cuál...?. ¿Cuáles...?.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Application/practical	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3

L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

SECOND SEMESTER

Statistics II

Statistics II

Course Details				
Code	T	A	C	ECTS
311001022024	3	0	3	5
Course Name	Statistics II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim of this course is to provide students with the ability to analyze and interpret data statistically.			
Course Content	Sampling distributions of means and proportions, sampling distributions of variances, sampling distributions, confidence intervals and hypothesis testing, basic statistical analysis methods, basic concepts of time series and computer applications.			
References	Newbold Paul (2008), İşletme ve İktisat için İstatistik, Literatür Turanlı Münevver ve Gürış Selahattin, Temel İstatistik, Der Yayınları Bülbül Şahamet (2013), Tanımlayıcı İstatistik, Der Yayınları Akdeniz Fikri (2013), Olasılık ve İstatistik, Akademisyen Kitapevi			
Planned Learning Activities and Teaching Methods	Lecture Question-Answer Sample Question Solution Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To gain statistical analysis skills with basic concepts and methodological background
2	To be able to test population parameters with hypothesis tests
3	To be able to estimate confidence intervals for population parameters

4	To be able to make statistical inference between variables
5	To be able to perform confidence intervals, t and z tests and correlation applications on the computer using real data sets
6	To be able to determine the best estimator for the parameter.
7	To be able to interpret the relationship between two variables.

Weekly Topics and Preparation	
Week	Topics
1. Week	Sampling: Basic Concepts, Steps in the Sampling Process, Sampling Methods
2. Week	Estimator and Estimator, Properties of Estimator, Selection of Estimator
3. Week	Sampling Distribution of Sample Mean, Proportion, and Variance
4. Week	Interval Estimation: Confidence Intervals of Mean and Proportion
5. Week	Interval Estimation: Confidence Intervals of Difference (Mean and Proportion) Between Two Populations
6. Week	Interval Estimation: Confidence Intervals of Population Variance and Variance Ratios
7. Week	Hypothesis Testing: Concepts, Steps, Hypothesis Tests on a Single Population Parameter
8. Week	Hypothesis Testing: Hypothesis Tests on Two Population Means
9. Week	Analysis of Variance: One-Way and Two-Way Analysis of Variance
10. Week	Goodness-of-Fit Tests and Crosstabulations
11. Week	Normality Tests
12. Week	Non-Coefficient Tests: Sign, Wilcoxon, Mann-Whitney Testing
13. Week	Correlation and Correlation Analysis
14. Week	Time Series Analysis: Classification of Changes

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00

Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	3	5	5	3	3	4	4	1	1	4
L.O.2	5	5	4	5	5	4	4	3	2	2	2	5
L.O.3	5	4	4	5	5	4	4	3	2	2	2	4
L.O.4	4	5	4	5	5	4	4	4	2	2	2	4
L.O.5	4	5	4	5	5	4	4	4	5	2	5	3
L.O.6	5	4	2	3	3	2	2	2	1	1	1	2
L.O.7	3	4	3	5	5	5	4	4	5	2	5	2

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Mathematics II

Mathematics II

Course Details				
Code	T	A	C	ECTS
1xx	3	0	3	5
Course Name	Mathematics II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim is to provide the ability to use basic mathematical concepts and methods.			
Course Content	It is the ability to comprehend the basic mathematical concepts and methods and apply them in Social Sciences, Functions of Several Variables, Single Variable Optimization Problems in Economics, Multivariable Optimization Problems in Economics, Optimization Under Constraints, Indefinite Integral, Definite Integral, Applications of Definite and Indefinite Integral in Economics and Business Administration, Definition of Matrices and Basic Arithmetic Operations.			
References	Mustafa Aytaç, Mustafa Sevüktekin ve Erkan Işığışok (2013) Sosyal Bilimlerde Matematik, Ezgi Kitabevi. Alpha C. Chiang ve Kevin Wainwright (2005) Matematiksel İktisadın Temel Yöntemleri, Gazi Kitabevi, Çeviren Muzaffer Sarımeşeli ve Şenay Açıkgöz. Edward T. Dowling (2013) İşletme ve İktisat İçin Matematiksel Yöntemler, Schaum's Outlines, Nobel Yayın Dağıtım, Çeviren Murat Yıldırım ve Ömer Faruk Çolak. George B. Thomas, Maurice D. Weir ve Joel R. Hass (2011) Thomas Kalkülüs Cilt I-II, Pearson Education, Çeviri Editörü Mustafa Bayram.			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question-Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to comprehend basic mathematical concepts and methods.
2	To be able to gain problem solving ability by gaining analytical thinking skills.
3	To be able to make analyses and show the mathematical basis of the analyses made.
4	To be able to apply mathematical methods to economics and business fields.
5	To be able to gain basic mathematical knowledge required for the preparation and analysis of econometric models.
6	To be able to solve multivariable optimization problems.
7	To be able to learn and define various integrals.

Weekly Topics and Preparation	
Week	Topics
1. Week	Multivariable Functions
2. Week	Multivariable Functions (Continued)
3. Week	Single Variable Optimization Problems in Economics
4. Week	Multivariable Optimization Problems in Economics
5. Week	Multivariable Optimization Problems in Economics (Continued)
6. Week	Optimization Under Constraints
7. Week	Optimization Under Constraints (Continued)
8. Week	Indefinite Integral
9. Week	Indefinite Integral (Continued)
10. Week	Definite Integral
11. Week	Definite Integral (Continued)
12. Week	Definite Integral (Continued)

13. Week	Applications of Definite and Indefinite Integral in Economics and Business
14. Week	Applications of Definite and Indefinite Integral in Economics and Business (Continued)

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	2,00	14,00
Problem Solving	7	1,00	7,00
Self-study	14	2,00	28,00
Midterm (Self-study)	5	2,00	10,00
Final Exam (Self-study)	6	3,00	18,00
Reading	7	1,00	7,00
Assignments (Self-study)	3	4,00	12,00
Total			140,00
Total Workload / 30 (Hour)			4,63
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	3	3	3	2	4	3	3	2	5	3
L.O.3	4	3	3	5	4	3	3	4	4	4	4	3
L.O.4	3	5	2	4	2	3	3	5	2	5	2	3
L.O.5	4	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	3	3	3	2	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Linear Algebra

Linear Algebra

Course Details				
Code	T	A	C	ECTS
311001062024	3	0	3	4
Course Name	Linear Algebra			

Course Language	Turkish
Course Level	Undergraduate
Course Type	Compulsory
Prerequisites	None
Course Objective	To be able to solve linear equation systems used in econometrics, to perform matrix operations and to provide information on vector spaces.
Course Content	Systems of linear equations and their solution methods, matrix information and special matrices, arithmetic operations on matrices, finding the inverse of a matrix, the concept of determinant, calculating the determinant of a matrix, vector spaces.
References	Kolman, Bernard ve Hill, David R. (2016) Uygulamalı Lineer Cebir, Palme Yayıncılık, Çeviri Editörü Ömer Akın.Yardımcı Kaynaklar: Strang, Gilbert (2016) Introduction to Linear Algebra, Wellesley - Cambridge Press. Lipschutz, Seymour, Lipson, Marc Lars, (2016) Lineer Cebir, Schaum's Outlines, Nobel Yayın Dağıtım, Çeviren İlker Akkuş. Taşcı, Dursun (2006) Lineer Cebir, Gazi Kitabevi.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in linear algebra.
2	To be able to know the basic theories used in linear algebra.
3	To be able to perform arithmetic operations with matrices.
4	To be able to solve linear equation systems.
5	To be able to use linear equation systems in applied studies.
6	To be able to understand the importance of using linear equation systems.
7	To be able to solve linear equation systems in a computer environment.

Weekly Topics and Preparation	
Week	Topics
1. Week	Systems of Linear Equations
2. Week	Gauss Elimination Method
3. Week	Matrices and Systems of Linear Equations
4. Week	Solving Systems of Linear Equations with Augmented Matrices
5. Week	Special Matrices and Operations on Matrices
6. Week	Multiplication Operation on Matrices
7. Week	Kronecker Product
8. Week	Finding the Inverse of Matrices with Elementary Row Operations
9. Week	Definition of Determinant and Calculation of a Determinant
10. Week	Finding the Inverse of a Matrix Using a Determinant
11. Week	Cramer's Method
12. Week	Vectors
13. Week	Eigenvalues and Eigenvectors
14. Week	Cayley-Hamilton Theory

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	2,00	28,00
Application/practical	5	3,00	15,00
Final Exam (Self-study)	7	3,00	21,00
Total			122,00
Total Workload / 30 (Hour)			4,07
ECTS			4

Program Learning Outcome Relationship

	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	5	4	3	5	3	2	4	3	3	2	3	3
L.O.3	4	3	3	5	4	3	3	4	4	2	4	3
L.O.4	4	3	3	5	4	3	3	4	4	2	4	3
L.O.5	4	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	3	3	3	2	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Introduction to Economics

Introduction to Economics

Course Details				
Code	T	A	C	ECTS
1xx	3	0	3	4
Course Name	Introduction to Economics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	To provide students with the basic concepts and analysis tools of economic analysis. In general, it is aimed for students to think about real world problems in an economic way. The main focus is to examine the conceptual foundations of economics and to examine microeconomic theory that addresses individual choice problems. In addition, the aim is to perceive macroeconomic analysis and to prepare students to the level of explaining the macroeconomic structure.			
Course Content	The aim of the course is to provide students with the basic concepts and analysis tools of economic analysis. The aim is to ensure that students are prepared to perceive microeconomic analysis and to explain the economic structure in a micro framework. National economies constitute the main field of study in this course. It is aimed to learn national income calculations, economic growth, formation and components of aggregate demand and supply, macroeconomic problems such as unemployment and inflation, and economic policies developed in the face of these problems.			
References	Ertek, Tümay, Mikroekonomiye Giriş, Beta, 2005 Ergun, Temel, Mikro Ekonomiye Giriş, Detay Yayıncılık, 2011 Parasız, İlker, İktisada Giriş, 8. Baskı, Ezgi Kitabevi, 2006. Pekin, Tefik, Ekonomiye Giriş, Bornova 1999.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				

Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the nature and scope of economics.
2	To be able to understand the basic concepts of economics.
3	To be able to understand the method and concepts of economics.
4	To be able to understand the different forms of consumer behavior theory.
5	To be able to learn production theory (Production-Cost Functions) and market structures.
6	To be able to understand distribution relations, wage, interest, rent and profit formation.
7	To be able to understand the theoretical discussions in macroeconomic theory.

Weekly Topics and Preparation	
Week	Topics
1. Week	Nature, scope and method of Economics (Basic Concepts)
2. Week	Demand and Supply
3. Week	Theory of Consumer Behavior
4. Week	Theory of Producer Behavior
5. Week	Perfect Competition Market
6. Week	Monopoly and Oligopoly
7. Week	Measurement of National Product, National Income and Price Level
8. Week	Macroeconomic Analysis (AD-AS Review)
9. Week	Classical and Keynesian Employment Theories
10. Week	Equilibrium National Product in the Keynesian Model
11. Week	Fiscal Policy
12. Week	Monetary Policy
13. Week	Alternative Views in Macroeconomics
14. Week	Income Distribution

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Quiz	5	0,10	0,50
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	1	5,00	5,00
Final Exam (Self-study)	1	10,00	10,00
Pre-study	5	1,00	5,00
Midterm	1	0,5	0,50
Question and Answer	14	2,00	28,00
Discussion	14	2,00	28,00
Total			120,00
Total Workload / 30 (Hour)			4,00
ECTS			4

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	4	5	3	3	3	3	3	3	3	4
L.O.2	5	3	3	5	3	3	3	4	4	3	3	3
L.O.3	5	3	3	3	4	3	4	3	3	3	3	4
L.O.4	4	3	5	3	4	3	3	4	3	3	3	4
L.O.5	5	4	3	5	3	4	4	3	3	2	2	3
L.O.6	5	4	3	5	3	4	4	3	3	2	2	3
L.O.7	5	3	3	4	3	5	4	4	3	3	2	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Scientific Research Methods

Scientific Research Methods

Course Details				
Code	T	A	C	ECTS
1xx	3	0	3	4
Course Name	Scientific Research Methods			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	Providing information on how to plan, prepare and present scientific research in the field of social sciences.			
Course Content	Types of information and scientific information, definition of science and branches of science, function of science, criteria and characteristics, scientific research methods, basic scientific concepts, quantitative and qualitative research methods, access to resources, scientific ethics, reporting, presentation techniques.			

References	Karasar, Niyazi (2005). Bilimsel Araştırma Yöntemi 14. Baskı, Nobel Yayın Dağıtım. Yıldırım, Ali ve Şimşek, Hasan (2016). Sosyal Bilimlerde Nitel
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question-Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to comprehend scientific thinking.
2	To be able to define the process of acquiring scientific knowledge.
3	To be able to operate the process of producing scientific knowledge.
4	To be able to comprehend the quantitative scientific method.
5	To be able to comprehend the qualitative scientific method.
6	To be able to produce solutions to social problems with scientific methods.
7	To be able to present research within the framework of scientific standards.

Weekly Topics and Preparation	
Week	Topics
1. Week	Information and Types of Information
2. Week	Scientific Information
3. Week	Science and Branches of Science
4. Week	Science Function, Criteria and Features
5. Week	Scientific Research
6. Week	Basic concepts such as Theory, Hypothesis etc.
7. Week	Scientific Method
8. Week	Deduction and Induction
9. Week	Quantitative Research Methods
10. Week	Qualitative Research Methods

11. Week	Access to Resources
12. Week	Ethics in Science
13. Week	Reporting
14. Week	Presentation Techniques

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Self-study	14	1,00	14,00
Reading	10	1,00	10,00
Assignments	5	2,00	10,00
Midterm (Self-study)	5	2,00	10,00
Final Exam (Self-study)	6	3,00	18,00
Total			106,00
Total Workload / 30 (Hour)			3,53
ECTS			4

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	3	3	3	3	3	3	3	3	3	3	4
L.O.2	4	3	4	3	3	3	3	3	3	3	3	4
L.O.3	5	4	4	4	4	4	4	4	4	4	4	5
L.O.4	5	4	4	5	4	4	4	4	5	4	4	5
L.O.5	4	4	4	4	4	4	4	4	4	4	4	4
L.O.6	4	4	4	5	4	4	5	5	4	4	4	5
L.O.7	4	3	4	4	4	4	4	5	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Turkish Language II

Turkish Language II

Course Details				
Code	T	A	C	ECTS
311001142024	2	0	2	2
Course Name	Turkish Language II			
Course Language	Turkish			
Course Level	Undergraduate			

Course Type	Compulsory
Prerequisites	None
Course Objective	The aim of this course is to enable students to identify the elements of a sentence and their importance in order to form correct, good and beautiful sentences; to read and examine works related to the world of literature and thought and to make rhetorical applications; to recognize written and oral composition types and to make applications related to them; to be aware of language errors and to correct them; to know the rules to be followed in the preparation of scientific articles and to apply them.
Course Content	Turkish derivational suffixes and their applications. Usage of adverbs and prepositions in Turkish. Rules related to composition, plan and application to be used in composition writing. Conjugation of nouns and verbs in Turkish. Forms of expression in composition and their applications. Reading and examining sample texts related to literature and the world of thought.
References	Aksan, Doğan; Her Yönüyle Dil/Ana Çizgileriyle Dilbilim, TDK Yayınları. Korkmaz, Prof. Dr. Zeynep; Gülensoy, Prof. Dr. Tuncer; Ercilasun, Prof. Dr. Ahmet B.; Türk Dili Ve Kompozisyon Bilgileri, Yargı Yay., Ankara, 2001. Ergin, Prof. Dr. Muharrem; Türk Dil Bilgisi, Bayrak Yay., İstanbul, 1999.
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn the function of words in oral and written expression.
2	To be able to understand the importance of correct syntax in Turkish sentences.
3	To be able to analyze sentences and passages selected from literary texts and books.
4	To be able to understand the types and characteristics of written expression.
5	To be able to understand the types and characteristics of oral expression.
6	To be able to learn the rules of official writing such as petitions, reports, private letters and business letters, CVs.

Weekly Topics and Preparation	
Week	Topics

1. Week	General Language Culture: Definition of communication, basic elements of communication and effective communication. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and impromptu speeches.
2. Week	General Language Culture: Definition and characteristics of language, place and importance of language in our social life. Language-thought, language-nation, language-culture connection; definition of culture. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Punctuation marks (Period, comma, semicolon, colon, ellipsis).
3. Week	General Language Culture: Languages in the world, world languages in terms of source (origin), world languages in terms of structure, language differentiation; written language, spoken language (dialect, accent, mouth). Text Writing Formats: Petition writing. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Punctuation marks (Parentheses, square brackets, apostrophes, quotation marks).
4. Week	General Language Culture: The place of Turkish among world languages, the history of the Turkish language. Text Writing Styles: Writing a CV. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Punctuation marks (slash, hyphen, em dash, correction mark, exclamation mark).
5. Week	General Language Culture: Development of Turkish Language (Historical Periods of Turkish); Altai Period, Oldest Turkish, First Turkish, Old Turkish. Gokturk Inscriptions. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
6. Week	General Language Culture: Development of Turkish language (historical periods of Turkish); Middle Turkish, Karahanli Turkish, Khwarezm Turkish, Kuman-Kypchak Turkish, Old Anatolian Turkish, Chagatai Turkish. Divanu Lugati't-Turk, Kutadgu Bilig, Divan-i Hikmet, Yunus Emre, Ali Sir Nevai, Muhakemetü'l-Lûgateyn. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and impromptu speeches.
7. Week	General Language Culture: Development of the Turkish language (historical periods of Turkish); New Turkish, Modern Turkish. Dialects of Turkish, Accents of Turkish, Dialect. The current status of the Turkish language and areas of spread, alphabets used by the Turks until today, linguistics (phonetics, root knowledge, syntax, semantics).
8. Week	General Language Culture: Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and practices, book introductions, prepared and impromptu speeches.
9. Week	Grammar: Phonetics. Sounds in Turkish and their classification, general sound characteristics of Turkish, syllable structure of Turkish, word stress. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and

	unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
10. Week	Grammar: Phonetics Sound events; sound derivation, sound deletion, vowel change, assimilation. Main sound harmony in Turkish words (thickness-thinness harmony, flatness-roundness harmony, consonant harmony) Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches.
11. Week	Grammar: Words in terms of meaning and functions. Nouns, pronouns. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
12. Week	Grammar: Words in terms of meaning and function. Adjectives, adverbs. Oral and Written Expression Studies: Presentation, poem, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
13. Week	Grammar: Words in terms of meaning and function. Prepositions, gerunds. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.
14. Week	Grammar: Words in terms of meaning and function. Verbs; verb conjugations, verb tenses, person in verbs. Auxiliary verb, compound conjugation of verbs, voice in verbs. Verbs according to their structures, auxiliary verbs, compound verbs. Oral and Written Expression Studies: Presentation, poetry, essay, composition, story, newspaper, magazine studies and applications, book introductions, prepared and unprepared speeches. Spelling and Punctuation Studies: Application of punctuation marks.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	2,00	28,00
Self-study (Pre-class)	14	2,00	28,00
Self-study (Post-class)	14	1,00	14,00
Total			72,00
Total Workload / 30 (Hour)			2,40

ECTS	2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	5	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	3	2	4	5	3	3
L.O.4	4	4	4	5	5	4	3	3	5	5	5	3
L.O.5	4	5	5	5	5	5	2	3	5	5	5	3
L.O.6	3	5	5	5	5	5	2	2	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Principles of Atatürk and History of Turkish Revolution II

Principles of Atatürk and History of Turkish Revolution II

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Principles of Atatürk and History of Turkish Revolution II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	To be able to explain the conditions that prepared the national struggle and the Turkish Revolution, the foundation of the Republic and Atatürk's principles and reforms.			
Course Content	The signing of the Treaty of Lausanne, the declaration of the Republic, the reforms made in the political, legal, educational, cultural and social fields, the Turkish foreign policy during the Atatürk period and the principles that constitute the Atatürk thought system.			
References	Atatürk İlkeleri ve İnkılap Tarihi/1-2, YÖK Komisyon, Ankara, 1985-M. Derviş Kılınçkaya (editör), Atatürk ve Türkiye Cumhuriyeti Tarihi, Ankara 2005.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Distance Learning			

Learning Outcomes
Upon completion of this course, the student will:

1	To be able to understand the Treaty of Lausanne and the declaration of the Republic.
2	To be able to explain the revolutions made in the political field.
3	To be able to explain the revolutions made in the field of education and culture.
4	To be able to explain the Turkish foreign policy during the Ataturk period.
5	To be able to explain the principles of Ataturk.

Weekly Topics and Preparation	
Week	Topics
1. Week	The issue of signing the Treaty of Lausanne, the completion of the term of the First Assembly, the signing of the Treaty of Lausanne, the declaration of the Republic
2. Week	Reforms carried out in the political arena: Abolition of the sultanate, the declaration of the Republic
3. Week	Reforms carried out in the political arena: Abolition of the caliphate, attempts at transition to multi-party life
4. Week	Innovations carried out in the field of law: 1921-1924 constitutions and the Turkish civil code
5. Week	Reforms carried out in the field of education and culture: the adoption of the new Turkish alphabet
6. Week	Reforms carried out in the field of education and culture: the establishment of the Turkish Historical Society and the Turkish Language Society and the realization of university reform
7. Week	Reforms carried out in the social field: women's rights
8. Week	Reforms carried out in the social field: the closure of dervish lodges and convents, changes in dress, changes in calendars, hours and measurements
9. Week	The basic principles of Turkish foreign policy during the Ataturk period
10. Week	The basic principles of Turkish foreign policy during the Ataturk period
11. Week	Important foreign policy developments during the Ataturk period
12. Week	Important foreign policy developments
13. Week	Ataturk's principles
14. Week	Ataturk's principles

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload

Final Exam	1	2,00	2,00
Course Participation	14	2,00	28,00
Midterm	1	2,00	2,00
Self-study	14	2,00	28,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	3	2	3	3	3	2	2	3	2	2	4
L.O.2	3	3	2	3	3	3	2	2	4	2	2	4
L.O.3	4	3	3	4	2	3	3	3	4	2	2	5
L.O.4	4	3	3	4	3	2	3	3	3	3	2	5
L.O.5	4	3	3	4	3	2	3	3	3	3	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Career Development

Career Development

Course Details				
Code	T	A	C	ECTS
1xx	0	2	1	2
Course Name	Career Development			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim of this course is to provide students with the necessary knowledge, skills and competencies to plan their careers, prepare for the business world and sustain their professional development. It is aimed for students to recognize their own strengths and weaknesses, determine their career goals, develop job search strategies and acquire the necessary equipment to be successful in the business world.			
Course Content	Career concept and career planning process, self-assessment and personal SWOT analysis, career fields and job opportunities for economics graduates, effective CV and motivation letter preparation techniques, interview techniques and job interview preparation, professional communication skills and networking, business ethics and professional behavior, career management in digital environment and social media usage, entrepreneurship and innovation, leadership and teamwork skills, time management and work-life balance, stress management and resilience, continuous learning and professional development in career development, national and international certificate programs in economics.			
References	Öztemel, K. (2019). Kariyer planlama ve geliştirme. Ankara: Pegem Yayıncılık. Sevinç, E. (2010). Kariyer planlama ve yönetimi. Etap Yayınları, İstanbul. Dağdeviren, O. (2017). Kariyer Kitabı – Doğru İş Bulma ve “Kurumsal Hayatta Kalma” Rehberi, Abaküs Kitap.			

	Canbulut, İ. (2021). Zirvedeki Seni Bul – Üniversite Öğrencileri İçin Kariyer Rehberi, Ceres Yayınları.
Planned Learning Activities and Teaching Methods	Interactive in-class lectures, group work, case studies, role-playing activities, seminars and guest speakers, resume and motivation letter writing practices, interview simulations, participation in career fairs and events, orientation to certification programs, individual career counseling sessions.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to effectively conduct the career planning process and determine personal career goals
2	To be able to analyze one's own strengths and weaknesses and make career plans accordingly
3	To be able to evaluate current career fields and job opportunities for economics graduates
4	To be able to prepare an effective resume and motivation letter
5	To be able to use job interview techniques and prepare for interviews professionally
6	To be able to create and maintain a professional network
7	To be able to effectively use communication skills required in the business world
8	To be able to evaluate career opportunities by developing entrepreneurship and innovation skills
9	To be able to apply time management, stress management and work-life balance strategies
10	To be able to use the necessary resources and certification programs for continuous learning and professional development

Weekly Topics and Preparation	
Week	Topics
1. Week	The Concept of Career and the Importance of Career Planning
2. Week	Self-Assessment and Personal SWOT Analysis
3. Week	Career Fields and Job Opportunities for Economics Graduates
4. Week	Effective Resume (CV) Preparation Techniques
5. Week	Motivation Letter and Job Application Documents
6. Week	Interview Techniques and Job Interview Preparation

7. Week	Professional Communication Skills and Body Language
8. Week	Networking and Developing Professional Relationships
9. Week	Career Management in the Digital Environment and Use of Social Media
10. Week	Entrepreneurship and Innovation
11. Week	Leadership and Teamwork Skills
12. Week	Time Management and Work-Life Balance
13. Week	Stress Management and Resilience Development
14. Week	Continuous Learning, Professional Development and Certificate Programs

Assessment Methods (%)		
1	Theoretical/Practical Class Participation	40
2	Assignments (CV, Motivation Letter, etc.)	60
	Project/Presentation	
Note: Students can be exempted from the course by submitting different certificates totaling 60 hours. These certificates can be obtained until the end of the 8th semester. Students will be graded as pass/fail in the course.		

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Class Participation	14	2,00	28,00
Outside Class Study	14	1,00	14,00
Assignment	3	3,00	9,00
Project/Presentation Preparation	1	8,00	8,00
Career Fair/Event Participation	1	6,00	6,00
Total			65
Total Workload / 30 (Hour)			2,17
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	2	4	2	1	3	4	2	1	2	3
L.O.2	2	3	5	4	3	2	2	6	3	3	2	4
L.O.3	4	3	3	5	4	3	3	4	2	2	3	3
L.O.4	3	2	2	4	3	2	4	3	2	1	2	4
L.O.5	3	3	4	5	4	3	3	5	3	2	3	4

L.O.6	4	5	3	4	5	3	3	4	2	2	3	3
L.O.7	4	4	2	4	4	2	3	3	2	2	2	3
L.O.8	2	3	3	4	3	3	4	3	3	2	2	5
L.O.9	4	4	2	4	4	2	3	3	2	2	2	3
L.O.10	2	3	5	4	3	2	2	6	3	3	2	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Foreign Language II

German II

German II

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	German II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic German structure, vocabulary and communication skills. The course provides students with the opportunity to learn German grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their German vocabulary. Studies are conducted to expand their basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in German listening material. Students are provided with the skills to read and understand German texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic German communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, getting to know each other, giving information, asking questions. It also provides basic information about the cultural differences and traditions of German-speaking countries.			
Course Content	This course includes teaching basic English grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.			
References	Menschen A1.2/Kursbuch Arbeitsbuch			
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Distance Learning			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.

2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their future plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Module 5 / Lesson 13 Were you in the hotel Maritim Hearing: Directions / Speaking: Directions; Asking for Help / Institutions and Places in the City / Prepositions of Place
2. Week	Module 5 / Lesson 14 How did you find the Ottos Haus? Speaking: Describing and Evaluating a House / Reading: Listings / Writing: Writing an Email / Possessive Pronouns
3. Week	Module 5 / Lesson 15 In Giesing wohnt das Life Speak: Evaluating a Place / Reading: Blog / Dative Verbs and Personal Pronouns /
4. Week	Module 6 / Lesson 16 Were you in a Problem Listening / Speaking: Offering Help; Asking for Help; Apologizing / Reading / Writing: Email: Making an Appointment and Postponing / Prepositions of Time. vor, nach, in, für
5. Week	Module 6 / Lesson 17 Wer will Popstar werden? Speaking: expressing wishes and talking about plans / Reading: newspaper text / Writing: creative writing / Prepositions: mit and ohne / Modalverb: wollen
6. Week	Module 6 / Lesson 18 Geben Sie ihm doch diesen Tee! Listening/speaking: describing pain; giving advice; talking about illnesses / Reading: Guide / Imperatives (Sie) / Modalverb: sollen
7. Week	Module 7 / Lesson 19 Der hatte doch keinen Bauch! Speaking: describing people; to be surprised / Past tense: war, hatte / Inseparable verbs (past) / -ung word formation
8. Week	Module 7 / Lesson 20 Komm sofort runter! Speaking: requests and directions / Reading: diary / Writing: e-mail / Imperatives (du/ihr) / Personal pronouns (accusative case)
9. Week	Module 7 / Lesson 21 Bei Rot must du stehen, bei Grün darfst du gehen Speaking: expressing one's opinion; talking about rules / Reading: newspaper column / Modalverb: dürfen, müssen
10. Week	Module 8 / Lesson 22 Am besten sind seine Schuhe! Listening / speaking: talking about clothes and evaluating them; Strengthening expressions / Reading: forum posts / Comparison
11. Week	Module 8 / Lesson 22 Am besten sind seine Schuhe! Listening / speaking: talking about clothes and evaluating them; Strengthening expressions / Reading: forum posts / Comparison
12. Week	Module 8 / Lesson 23 Ins Wasser gefallen? Speaking: giving reasons; talking about the weather Reading: Blog Writing: Postcard denn Conjunction -los word formation
13. Week	Module 8 / Lesson 23 Ins Wasser gefallen? Speaking: giving reasons; talking about the weather Reading: Blog Writing: Postcard denn Conjunction -los word formation

14. Week	Module 8 / Lesson 24 Ich würde am liebsten jeden Tag feiern Speaking: expressing wishes; / Reading: greeting: invitations / Subjunctive mood: würde / Ordinal numbers

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Self-study (Post-class)	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

French II

French II

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	French II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic French structure, vocabulary and communication skills. The course provides students with the opportunity to learn French grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their French vocabulary. Studies are conducted to expand basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in French			

	listening material. Students are provided with the skills to read and understand French texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic French communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about cultural differences and traditions of French-speaking countries.
Course Content	This course includes teaching basic French grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.
References	Tendances: Méthode de français, Girardet, J., Pécheur, J., Gibbe, C., & Parizet, M.-L.: CLE international, 2016, Paris Tendances Méthode de français Cahier d'activités A 1, Grammaire Progressive du Français, Paris: CLE international. Girardet, J., Pécheur, J., Grégoire. avec la participation de Gracia Merlo.
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their future plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Unit 4 – Leçon 1 / Participer à une sortie Reading: Short message, invitation and plans for the near future Listening: Dialogue to meet Writing: Verbs Savoir, Connaître, Vouloir, Pouvoir and Devoir Speaking: Responses to an invitation
2. Week	Unit 4 – Leçon 2 / Participer à une sortie Reading: Short message, invitation and plans for the near future Listening: Dialogue to meet Writing: Verbs Savoir, Connaître, Vouloir, Pouvoir and Devoir Speaking: Responses to an invitation

3. Week	Unit 4 – Leçon 3 / Faire face à un problème Listening: Understanding a problem Speaking: Explaining your problem, Asking for/giving advice, Expressing agreement or disagreement with different opinions Writing: Imperative mood
4. Week	Unit 4 – Leçon 4 / Faire un pique-nique Reading: A French dinner menu Writing: Les articles partitifs (de la, du, de l', des) Quantifiers Speaking: Proposing to meet outside and relaying someone's words
5. Week	Unité 5 – Leçon 1 / Voyager Reading: A text about a journey Listening: Telling about your memories after your journey Writing: Telling about your journey using the past tense (passé-composé) Speaking: Talking about your past events
6. Week	Unité 5 – Leçon 2-3 / Organiser un voyage Reading: Travel documents (tickets etc.) Listening: Announcements to travellers Writing: Vehicles Arriver, partir, changer and prendre verbs Speaking: Asking/expressing the reasons and purposes of events with pour, pourquoi and parce que
7. Week	Unité 5 – Leçon 4 / Visiter une région Reading: Getting to know a region Determining the weather from a map Speaking: Talking about the weather Writing: Giving information about a region
8. Week	Unité 6 – Leçon 1 / Faire des achats Reading: Choosing a gift Writing: Comparison (plus, moins, aussi, le plus, le moins, le meilleur, etc.) Verbs Montrer and Choisir Demonstrative adjectives Listening: Deciding on a gift
9. Week	Unité 6 – Leçon 2-3 / Acheter Reading: Ordering/buying online Writing: Verbs Acheter, payer, vendre Form of necessity (il faut) Listening: Choosing clothes Speaking: Expressing the color of clothes
10. Week	Unité 6 – Leçon 4 / Consommer Reading: "Are you a conscious consumer?" test Writing: Essayer and Envoyer verbs Speaking: Ordering at a restaurant and asking for the bill
11. Week	Unité 7 – Leçon 1-2 / Se faire des relations Listening: Getting to know each other and chatting about hobbies Writing: COD (complément d'objet direct) Adverbs of process (depuis, pendant etc.) Speaking: Accepting / rejecting offers to meet Reading: Work experience
12. Week	Unité 7 – Leçon 3-4 / Parler de ses relations Listening: Talking about a work experience Writing: COI (complément d'objet indirect) and the verb Plaire Reading: Understanding text messages, postcards, e-mails and invitations
13. Week	Unité 8 – Leçon 1-2 / Organiser ses loisirs Reading: Photo album Film summaries Writing: Passé Composé (past tense with -di) and Imparfait (past tense with -yor) Imparfait forms of the verbs Travailler, Aller, Avoir and Prendre Qui and Que Listening: Memories Speaking: Film introduction
14. Week	Unité 8 – Leçon 3-4 / Faire du sport - Donner son opinion sur un spectacle Listening: Talking about the sport one plays Writing: Le pronom "en" Speaking: Telling about the sport one plays/likes Expressing one's own opinion about events Reading: Getting information about an event (concert, theater, cinema, etc.) shared on social media

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Self-study (Post-class)	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

English II

English II

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	English II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course offers students who have completed the Basic English course the opportunity to take their English language skills to a further level. The course is designed to develop listening, speaking, reading and writing skills, expand grammar and vocabulary, and equip students with the ability to understand more complex English texts. It aims to develop students' basic English structure, vocabulary and communication skills. The course offers students the opportunity to learn English grammar rules and basic structures. Basic grammar topics such as English verb conjugations, pronouns, adjectives, adverbs, prepositions and conjunctions are covered. The course teaches students different vocabulary learning strategies to increase their English vocabulary. Studies are carried out to expand their basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in English listening material. Students are given the skills to read and understand English texts, and then to create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic English communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, introduction, giving			

	information, asking questions. Also to provide basic information about the cultural differences and traditions of English-speaking countries.
Course Content	Introducing people, asking questions about what they do, talking about what they do, expressing what they want to eat (ordering at a restaurant), TV programs, talking about your daily schedule, how people met and talked about something that happened in the past (past tense), plans, actions done in the past, cooking, vacation, a new job, housework, inviting someone out.
References	eBook
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills at A1 level.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their future plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Should/ must/ have to/ has to/ don't-doesn't have to / mustn't
2. Week	Countable and uncountable nouns – much/ many/ a lot of / a few / a little / can – may / would for requests- would like offers
3. Week	Countable and uncountable nouns – much/ many/ a lot of / a few / a little / can – may / would for requests- would like offers (Devam)
4. Week	Present simple & present continuous- stative verbs- possessive pronouns
5. Week	Present simple & present continuous- stative verbs- possessive pronouns (Devam)
6. Week	Past Simple & verb to be) Past Simple (regular/irregular verbs
7. Week	Future Simple will, be going to, present continuous for future, adjectives –ed, ing adjectives- comparative forms of adjectives

8. Week	Future Simple will, be going to, present continuous for future, adjectives –ed, ing adjectives- comparative forms of adjectives (Devam)
9. Week	Past continuous & past simple, used to, could, had to, didn't have to- superlative forms adjectives
10. Week	Past continuous & past simple, used to, could, had to, didn't have to- superlative forms adjectives (Devam)
11. Week	Conditionals type0-1, unless, present perfect, since/for, ever/never, already, yet in present perfect tense
12. Week	Conditionals type0-1, unless, present perfect, since/for, ever/never, already, yet in present perfect tense (Devam)
13. Week	Relative Clauses- defining, non-defining relative Clauses, the passive
14. Week	Relative Clauses- defining, non-defining relative Clauses, the passive (Devam)

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Self-study (Post-class)	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Chinese II**Chinese II**

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2

Course Name	Chinese II
Course Language	Turkish
Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	This course aims to develop students' basic Chinese structure, vocabulary and communication skills. The course provides students with the opportunity to learn Chinese grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their Chinese vocabulary. Studies are conducted to expand their basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in Chinese listening material. Students are provided with the skills to read and understand Chinese texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic Chinese communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about the cultural differences and customs of Chinese-speaking countries.
Course Content	This course includes teaching basic Chinese grammar as well as reading, comprehension, writing, listening comprehension and speaking skills.
References	Elektronik Kitap
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their future plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation

Week	Topics
1. Week	Introduce yourself. Introduce someone. Greeting
2. Week	Present tense. Positive and negative sentence structure. Feminine and masculine articles, singular/plural object.
3. Week	Giving and requesting information about someone. Asking questions.
4. Week	Expressing preferences. Talking about your job and family
5. Week	Talking about your daily activities Talking about your country. Telling the time and date.
6. Week	Making an offer, accepting an offer.
7. Week	Rejecting an offer. Asking/answering a question. Determining an activity program.
8. Week	Possessive pronouns, demonstrative pronouns Question patterns
9. Week	Reflexive verbs. Imperative mood.
10. Week	Giving information about your daily program. Making a statement.
11. Week	Giving directions, indicating countries and cities on a map. Asking for addresses.
12. Week	Shopping, placing an order Asking for prices
13. Week	Ordering at a cafe or restaurant. Polite asking patterns
14. Week	Making a shopping list, Stating your needs.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Self-study (Post-class)	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship

	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Russian II

Russian II

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Russian II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic Russian language structure, vocabulary and communication skills. The course provides students with the opportunity to learn the rules and basic structures of Russian grammar. The course teaches students different vocabulary learning strategies to increase their Russian vocabulary. Activities are carried out to expand their basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in Russian listening material. Students are taught the skills to read and understand Russian texts and then to create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic Russian communication skills that they can use in everyday life. Focusing on everyday communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about the cultural differences and traditions of Russian-speaking countries.			
Course Content	The aim is for the student to learn the prepositions of time and place and the related verbs and adjectives, and to gain the ability to describe direction and place directions, people, places, cities and countries.			
References	ДАВАЙТЕ УЧИТЬ РУССКИЙ ЯЗЫК A1.1			
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Distance Learning			

Learning Outcomes

Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their future plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Self-description, Introduction to adjectives
2. Week	Teaching adjective types according to gender, Teaching adjective question patterns, Teaching numbers up to 1000
3. Week	Teaching the superlative level of adjectives "самый", Teaching demonstrative adjectives with demonstrative pronouns
4. Week	Ways of asking prices, Change of currencies according to numbers, Use of the verb "to please" with indefinite subjects
5. Week	Using food and beverage names, Transition to indirect speech with the verbs "to know and to think"
6. Week	Teaching the present tense form in verbs
7. Week	Questioning the ways of using the verbs «писать, понимать, читать » in all languages and their language levels.
8. Week	Teaching the presence of a noun and its related prepositions
9. Week	Teaching the use of the verbs "жить и учиться " with related prepositions in sentences, Teaching the names of cities and countries.
10. Week	Using the verbs «знать, говорить, учить, изучать...» and «говорить, учиться», distinguishing the use of the expressions «по-русски или русский язык» according to the verbs.
11. Week	Teaching nationality names, Teaching the relevant current dialogue and expression forms
12. Week	Using the accusative case of the noun with animate and inanimate nouns, Teaching new verbs and question forms used with the accusative case of the noun
13. Week	Teaching the forms «поэтому и потому что» conjunctions «можно/нельзя + инфинитив».
14. Week	Making sentences and dialogues about these forms.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Self-study (Post-class)	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Spanish II

Spanish II

Course Details				
Code	T	A	C	ECTS
1xx	2	0	2	2
Course Name	Spanish II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to develop students' basic Spanish structure, vocabulary and communication skills. The course provides students with the opportunity to learn Spanish grammar rules and basic structures. The course teaches students different vocabulary learning strategies to increase their Spanish vocabulary. Studies are conducted to expand basic vocabulary. Students are given the opportunity to listen to, understand and then express themselves in Spanish listening material. Students are provided with the skills to read and understand Spanish texts and then create their own written texts. Basic reading strategies and writing techniques are covered. It teaches students basic Spanish communication skills that they can use in daily life. Focusing on daily communication situations such as greeting, introduction, giving information, asking questions. It also provides basic information about cultural differences and traditions of Spanish-speaking countries.			
Course Content	Describe a person's character. Talk and write about daily habits and food. Describe the neighborhood. Explain how to get somewhere.			

References	“Sí, hablo español” (A1) kitabı. Yazarlar: Jesús García García, Carles İsern İñigo. İSTEK yayınları. 2018
Planned Learning Activities and Teaching Methods	Lectures, Theoretical Presentations, Class Discussions, Extracurricular Readings, Article and Book Reviews, Presentations, Online Resources and Videos related to the Course.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Distance Learning

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have reading, writing, listening and speaking skills.
2	To be able to tell their past experiences with simple expressions.
3	To be able to tell their daily and current lives with simple expressions.
4	To be able to tell their future plans with simple expressions.
5	To be able to talk to each other in familiar environments.

Weekly Topics and Preparation	
Week	Topics
1. Week	Communicative Purpose: Describe a person. Grammar: Verb “Gustar” and pronouns and adjectives of kindness. Vocabulary: family.
2. Week	Communicative Purpose: Describe a person. Grammar: Verb “Gustar” and pronouns and adjectives of kindness. Vocabulary: family.
3. Week	Communicative Purpose: Describe a person. Grammar: Verb “Gustar” and pronouns and adjectives of kindness. Vocabulary: family.
4. Week	Communicative Purpose: Activities of the week. Times. Tenses. Grammar: Review of irregular verbs in present tense)
5. Week	Communicative Purpose: Activities of the week. Times. Tenses. Grammar: Review of irregular verbs in present tense.
6. Week	Communicative Purpose: Communicating in a restaurant. Foods and recipes
7. Week	Communicative Purpose: Communicating in a restaurant. Foods and recipes
8. Week	City and neighborhood related words. Communicative Purpose: Describe the neighborhood you live in. Address description. Prepositions of place. Describing places we like. SER – ESTAR – HAY - TENER Difference.

9. Week	City and neighborhood related words. Communicative Purpose: Describe the neighborhood you live in. Address description. Prepositions of place. Describing places we like. SER – ESTAR – HAY - TENER Difference.
10. Week	City and neighborhood related words. Communicative Purpose: Describe the neighborhood you live in. Address description. Prepositions of place. Describing places we like. SER – ESTAR – HAY - TENER Difference.
11. Week	City and neighborhood related words. Communicative Purpose: Describe the neighborhood you live in. Address description. Prepositions of place. Describing places we like. SER – ESTAR – HAY - TENER Difference.
12. Week	Communicative Purpose: Describing events in the recent past. Character adjectives, masculine and feminine and the verb to be. Time Expressions in the recent past. Regular and irregular verbs. Verbs to be able to and to know and their difference
13. Week	Communicative Purpose: Describing events in the recent past. Character adjectives, masculine and feminine and the verb to be. Time Expressions in the recent past. Regular and irregular verbs. Verbs to be able to and to know and their difference
14. Week	Communicative Purpose: Describing events in the recent past. Character adjectives, masculine and feminine and the verb to be. Time Expressions in the recent past. Regular and irregular verbs. Verbs to be able to and to know and their difference

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	1,00	14,00
Application/practical	14	1,00	14,00
Self-study (Pre-class)	14	1,00	14,00
Self-study (Post-class)	14	1,00	14,00
Total			60,00
Total Workload / 30 (Hour)			2,00
ECTS			2

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12

L.O.1	3	5	5	5	5	5	2	2	4	3	4	3
L.O.2	3	5	4	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	4	4	5	2	2	4	5	3	3
L.O.4	4	5	5	5	5	4	3	3	5	5	5	3
L.O.5	3	5	5	5	5	5	2	3	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

SECOND YEAR

THIRD SEMESTER

Econometrics I

Econometrics I

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Econometrics I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	To provide the ability to approach economics analytically, to estimate an econometric model and to interpret its results.			
Course Content	Definition of Econometrics, single and multivariate linear regression models, Least Squares estimation method and assumptions, Maximum Likelihood Estimation method, estimation and forecasting, interval estimates and hypothesis testing			
References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Yardımcı Kaynaklar Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Green, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				

Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in the field of econometrics.
2	To be able to use an econometric research method.
3	To be able to know the basic assumptions of the classical econometric model.
4	To be able to understand the Least Squares estimation method.
5	To be able to make estimations and predictions.
6	To be able to test the validity of economic theory using econometric techniques.
7	To be able to interpret the results of an econometric model.
8	To be able to use a classical econometric model in applied studies.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition of Econometrics
2. Week	Univariate linear regression model
3. Week	Least Squares (LS) Estimation Method
4. Week	Assumptions of the LS method
5. Week	Characteristics of LS estimators
6. Week	Econometric Problems
7. Week	Maximum Likelihood Method
8. Week	Multivariate linear regression model
9. Week	Matrix approach to linear regression model
10. Week	Estimation of multivariate linear regression model
11. Week	Estimation and forecasting
12. Week	Interval estimation
13. Week	Hypothesis testing
14. Week	Application

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation

Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	5,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	5	4	4	4	4	5	3	2	3	4
L.O.2	5	5	4	5	5	4	5	5	4	3	4	5
L.O.3	5	4	5	4	4	4	4	5	3	2	3	4
L.O.4	4	4	5	5	5	4	5	5	3	2	3	4
L.O.5	4	5	4	5	5	5	5	5	3	2	3	4
L.O.6	4	5	5	5	5	5	5	5	3	2	3	4
L.O.7	4	5	5	5	5	5	5	5	3	2	3	4
L.O.8	4	5	5	5	5	5	5	5	3	2	3	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Mathematical Statistics

Mathematical Statistics

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Mathematical Statistics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The aim of this course is to convey the basic concepts of probability and statistics to the student and to create a theoretical background for the statistical courses he/she will take in the future.			
Course Content	Basic concepts related to mathematics and probability, permutation, combination, conditional probability, independence, cumulative and random variables, discrete and continuous variables, variable transformation technique, expected value, variance and standard deviation, moment and moment generating function, discrete and continuous distributions.			
References	İsmail Erdem. (2013). Matematiksel İstatistik. Seçkin Yayıncılık			

	Ceyhan İnal, Süleyman Günay (2013). Olasılık ve Matematiksel İstatistik. Hacettepe Üniversitesi Yayınları Çiğdem Özarı, Veysel Ulusoy (2013). Uygulamalı Matematiksel İstatistik. Pegem Akademi Yayıncılık John A. Rice, (2006) Mathematical Statistics and Data Analysis. Duxbury (Third Edition)
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn the basic concepts of mathematics and probability.
2	To be able to learn the basic concepts of random variables.
3	To be able to convey the basic information about statistical distributions.
4	To be able to learn the properties of moments.
5	To be able to convey the theoretical background of statistical techniques.
6	To be able to evaluate the information learned with cause-and-effect relationships.
7	To be able to understand how to apply the information in social science fields.

Weekly Topics and Preparation	
Week	Topics
1. Week	Basic concepts related to mathematics
2. Week	Basic concepts related to probability
3. Week	Using permutation, combination and Bayes theorem
4. Week	Cumulative distribution and random variables
5. Week	Independence of random variables and conditional probability functions
6. Week	Expected value, variance and standard deviation in discrete and continuous random variables
7. Week	Expected value, variance and standard deviation in discrete and continuous random variables (Continued)

8. Week	Transformation technique in discrete and continuous random variables
9. Week	Moments and moment generating function, finding moments with moment generating function and their usage areas
10. Week	Discrete Distributions, Bernoulli Distribution, Binomial Distribution
11. Week	Discrete Distributions, Poisson Distribution, Hypergeometric Distribution, Geometric Distributions, Continuous Distributions, Normal Distribution, Standard Normal Distribution
12. Week	Continuous Distributions, Uniform Distribution, Exponential Distribution, Gamma Distribution, Beta Distribution, Question about distributions solving
13. Week	Basic concepts related to mathematics
14. Week	Basic concepts related to probability

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	1,00	7,00
Self-study	7	2,00	14,00
Application/practical	7	2,00	14,00
Assignments (Self-study)	7	1,00	7,00
Assignments	3	4,00	12,00
Midterm (Self-study)	7	3,00	21,00
Final Exam (Self-study)	7	3,00	21,00
Total			140,00
Total Workload / 30 (Hour)			4,67
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	3	3	3	2	4	3	3	2	5	3

L.O.3	4	3	3	5	4	3	3	4	4	4	4	3
L.O.4	3	5	2	4	2	3	3	5	2	5	2	3
L.O.5	4	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	3	3	3	2	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Operations Research I

Operation Research I

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Operation Research I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The use of Operations Research techniques aims to create a perception of defining the problem, selecting a model according to the nature of the problem, being able to apply it, analyze it, and establishing a mathematical model.			
Course Content	Linear Programming, Integer Programming, Transportation Models, Solution Methods, Algorithms (Simplex-Branch-Bound)			
References	Yöneylem Araştırması, A. Hamdy TAHA, Literatür Yayıncılık, Ankara, 2001 Yöneylem Araştırması, Ahmet ÖZTÜRK, Ekin Yayınevi, İstanbul, 2012 Operations Research: Applications and Algorithms, Wayne L. Winston, Thomson Brooks/Cole, 2004 Yöneylem Araştırması Aydın Ulucan, Siyasal Kitabevi, 2001			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Book Reading Problem Solving			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to use solution techniques for economic problems.
2	To be able to define decision environments
3	To be able to explain the level of impact on the performance of institutions

4	To be able to make decisions in production processes
5	To be able to analyze optimization.
6	To be able to develop models for solving problems in different areas
7	To be able to learn algorithm structure.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to Operations Research, Basic Concepts, System Approach, Scientific Method Steps
2. Week	Linear Programming (Concepts, Definitions, Assumptions, Model Components, Sample Model Patterns)
3. Week	Linear Programming Solution Methods (Graphic Method)
4. Week	Linear Programming Solution Methods (Simplex Method)
5. Week	Simplex Algorithm/ Applications-Dual Simplex
6. Week	Simplex Algorithm/ Applications-two phase-Big M
7. Week	Integer Programming Introduction, Basic Concepts, Types, Model Components
8. Week	Mixed Integer Model Examples
9. Week	Branch and Bound Algorithm
10. Week	Network Optimization (Definitions-Min Spanning Tree)
11. Week	Shortest Path Problems/ Solution Algorithms (Floyd-Bellman-Dijkstra)
12. Week	Max Flow-Min Cost Flow Problems
13. Week	Transportation-Models
14. Week	Introduction to Operations Research, Basic Concepts, System Approach, Scientific Method Steps

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	2,00
Final Exam	1	1,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00

(Self-study)	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	2	7,00	14,00
Midterm (Self-study)	1	10,00	10,00
Final Exam (Self-study)	1	13,00	13,00
Total			139,00
Total Workload / 30 (Hour)			4,63
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	4	5	5	4	2	4	5	5	5
L.O.3	4	5	5	4	5	5	4	2	4	5	5	5
L.O.4	4	4	5	5	5	5	4	2	4	5	5	5
L.O.5	5	4	5	5	5	5	4	2	5	5	5	5
L.O.6	4	5	3	5	4	4	4	4	4	4	4	4
L.O.7	5	5	5	5	5	4	5	4	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Microeconomics

Microeconomics

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Microeconomics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	The microeconomics course is designed to deepen the basic knowledge that economics students receive in the introductory economics course and to provide the necessary information to enable them to analyze the behavior of consumers and producers in the markets. For this purpose, the basic concepts and techniques of microeconomic theory are covered in a comprehensive manner.			
Course Content	Definition and Subject of Economics, Area of Interest of Economics, Economic Analysis, Some Basic Concepts and General Overview of Market Economy, Economic Systems, Supply and Demand, Demand Elasticities, Supply Elasticities, Market Equilibrium, Intervention in Market Mechanism, Cardinal Utility Theory, Ordinal Utility Approach (Indifference Curve Theory), Consumer Behavior, Consumer Equilibrium			
References	Ünsal Erdal M., Mikro İktisat, 8. baskı, İmaj Yayınevi, Ankara, Mart 2010 Bulmuş İsmail, Mikroiktisat, Gazi Yayınevi,2008 Türkay Orhan, Mikro İktisat Teorisi, Adım yayıncılık, Ankara, 2000			

	Case E. Karl, Fair C. Ray, Microeconomics, Prentice Hall, 2002
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to comprehend market structure and tools.
2	To be able to comprehend consumer theories.
3	To be able to have information about general microeconomic theory.
4	To be able to understand the concept of optimal for consumers and producers.
5	To be able to solve optimization problems of consumers and producers.
6	To be able to comprehend the validity of microeconomics with real life examples.
7	To be able to explain consumer behavior and the relationship between preference and choice.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition and Subject of Economics, Area of Interest of Economics
2. Week	Economic Analysis, Some Basic Concepts and General Overview of Market Economy
3. Week	Economic Systems
4. Week	Economic Systems (Continued)
5. Week	Supply and Demand
6. Week	Demand Elasticities
7. Week	Supply Elasticities
8. Week	Practical Example Solution
9. Week	Market Equilibrium
10. Week	Intervention in Market Mechanism

11. Week	Cardinal Utility Theory
12. Week	Ordinal Utility Approach (Indifference Curve Theory)
13. Week	Consumer Behaviors
14. Week	Consumer Equilibrium

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00
Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	3	5	2	3	2	3	5	4	2	2
L.O.2	5	4	3	5	2	3	2	3	5	5	2	2
L.O.3	5	4	4	4	2	3	2	3	5	5	2	2
L.O.4	5	3	4	4	3	3	2	2	4	3	3	2
L.O.5	4	3	4	5	3	3	3	2	4	4	3	2
L.O.6	4	3	4	5	2	2	3	2	5	4	2	3
L.O.7	5	3	4	5	2	2	3	2	5	4	2	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

FOURTH SEMESTER

Econometrics II

Econometrics II

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Econometrics II			

Course Language	Turkish
Course Level	Undergraduate
Course Type	Compulsory
Prerequisites	None
Course Objective	To gain theoretical knowledge about the problems that may arise after the estimation of an econometric model, to gain the ability to use qualitative variables as explanatory variables in a linear regression model, to understand the effects of measurement errors in both dependent and explanatory variables on the linear regression model.
Course Content	Econometric problems, Multicollinearity, Heteroscedasticity, Autocorrelation, Dummy variable, Use of dummy variable as explanatory variable, measurement and measurement errors.
References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Greene, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in the field of econometrics.
2	To be able to know the basic assumptions of the classical econometric model.
3	To be able to understand econometric problems.
4	To be able to research and solve econometric problems.
5	To be able to solve econometric problems.

6	To be able to use dummy variables as explanatory variables.
7	To be able to interpret the coefficients of the regression model on measurement units.
8	To be able to understand measurement errors.

Weekly Topics and Preparation	
Week	Topics
1. Week	Econometric issues
2. Week	Multiple collinearity
3. Week	Heteroscedasticity
4. Week	Heteroscedasticity Tests
5. Week	Autocorrelation
6. Week	Autocorrelation Tests
7. Week	The problem of omitted variables
8. Week	Qualitative Variable
9. Week	Qualitative explanatory variable
10. Week	Dummy variable trap
11. Week	Qualitative dependent variable
12. Week	Scaling and measurement units
13. Week	Measurement errors in dependent variable
14. Week	Measurement errors in explanatory variable

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00

Total Workload / 30 (Hour)	4,97
ECTS	5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	4	4	4	3	2	3	4
L.O.2	5	5	5	5	5	4	5	5	3	2	3	4
L.O.3	5	5	5	5	5	4	5	5	3	2	3	4
L.O.4	5	5	5	5	5	4	5	5	3	2	3	4
L.O.5	5	5	5	5	5	4	5	5	2	2	3	3
L.O.6	4	4	5	4	4	5	4	4	3	2	3	4
L.O.7	4	5	5	5	5	4	5	5	3	2	2	4
L.O.8	4	4	5	5	5	4	5	5	3	2	2	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Open-Source Programming

Open-Source Programming

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Open-Source Programming			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	Learning the algorithmic way of thinking by understanding the principles and stages required for solving any problem, being able to code the solutions developed for the problems with the algorithmic way of thinking one has on an open source programming language, being able to access data related to the field from different databases and visualize them with graphs, being able to solve the encountered statistics and econometrics problems by coding.			
Course Content	Concept of Algorithm, Flowcharts, Basic Vector and Matrix Operations, Data Structures, Lists, Arrays, Loops, Data Sources, Graphs, Descriptive Statistics, Regression Analysis			
References	R Programlamaya Giriş, (2021), Atınç Yılmaz, KODLAB R ile Betimsel İstatistik, (2016), Necmi Gürsakal, Dora İstatistikte R ile Programlama, (2014), Necmi Gürsakal, Dora R ile Programlama, (2017), Yalçın Özkan ve Burak Özkan, Papatya Bilim			
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Discussion Applied Explanation Computer Aided Instruction			
Other Recommended	Will be announced at the beginning of the semester.			

Issues for the Course	
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define a given problem, determine its critical points and transform it into flow charts.
2	To be able to code loop and decision structures.
3	To be able to code the solution prepared as a flow chart in the language of the open-source program.
4	To be able to run and test the program and fix syntax and runtime errors.
5	To be able to install and run libraries in the open-source program.
6	To be able to solve and interpret statistical and econometric problems with the help of the open-source programming language.
7	To be able to visualize the data appropriately.

Weekly Topics and Preparation	
Week	Topics
1. Week	Algorithm Concept, Problem Solving and Flowcharts
2. Week	Program Introduction, Variable Definition, Basic Arithmetic, Derivative and Integral Operations
3. Week	Matrix Definition, Indices and Matrix Operations
4. Week	Decision Structures: if, if else, if else if
5. Week	Loops: for, while, repeat
6. Week	Applications: Decision Structures and Loops
7. Week	Generating Random Data from Some Statistical Distributions and Statistical Experiments
8. Week	Data Types (Vector, Matrix, Array, Data Frame, Factor and List Type), Data Transfer and Editing
9. Week	Graphs and Visual Analysis
10. Week	Function Creation: Descriptive Statistics Output
11. Week	Function Creation: Single Variable Regression Analysis Output
12. Week	Function Creation: Multivariable Regression Analysis Output (Matrix Approach)
13. Week	Tables and Reporting

14. Week	Ready Statistical Functions

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	2	7,00	14,00
Midterm Exam (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			143,00
Total Workload / 30 (Hour)			4,77
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	4	5	2	4	5	2	5	2
L.O.2	4	3	2	4	5	2	3	2	5	2	5	3
L.O.3	5	3	4	4	5	3	4	3	4	2	5	2
L.O.4	4	2	4	5	5	3	4	3	4	2	5	2
L.O.5	4	5	3	4	4	2	3	2	5	1	5	1
L.O.6	5	5	4	4	5	4	5	5	5	2	5	4
L.O.7	4	5	5	5	5	4	3	5	5	1	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Operations Research II

Operations Research II

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Operations Research II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			

Prerequisites	None
Course Objective	The use of Operations Research techniques aims to create a perception of defining the problem, selecting a model according to the nature of the problem, being able to apply it, analyze it, and establishing a mathematical model.
Course Content	Transportation Models, Assignment Model, Network Models, Minimum Spanning Tree Algorithm, Shortest Path Algorithm and Maximum Flow Model, CPM and PERT, Deterministic Stock Models, Probabilistic Stock Models, Queue Systems, Model Building with Simulation
References	Yöneticiler için Bilgisayar Destekli Karar Modelleri (Excel ile modelleme ve Çözüm Uygulamaları) Prof. Dr. Öner Esen,2008 Yöneylem Araştırması, Ahmet ÖZTÜRK, Ekin Yayınevi, İstanbul, 2012 Operations Research: Applications and Algorithms, Wayne L. Winston, Thomson Brooks/Cole, 2004 Yöneylem Araştırması Aydın Ulucan, Siyasal Kitabevi, 2001
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Book Reading Problem Solving
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to use solution techniques for economic problems.
2	To be able to define decision environments
3	To be able to explain the level of impact on the performance of institutions
4	To be able to make decisions in production processes
5	To be able to analyze optimization.
6	To be able to develop models for solving problems in different areas
7	To be able to algorithm structure.

Weekly Topics and Preparation	
Week	Topics

1. Week	Transportation Models
2. Week	Transportation Algorithms and Initial Solutions
3. Week	Improving the Solution in Transportation Algorithms
4. Week	Assignment Model
5. Week	Network Models
6. Week	Minimum Spanning Tree Algorithm
7. Week	Shortest Path Algorithm and Maximum Flow Model
8. Week	CPM and PERT
9. Week	Deterministic Stock Models
10. Week	Fundamentals of Probability and Estimation Methods
11. Week	Probabilistic Stock Models
12. Week	Queue Systems
13. Week	Building Models with Simulation
14. Week	Simulation Model Examples

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
(Self-study)	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	2	7,00	14,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			143,00
Total Workload / 30 (Hour)			4,77
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	4	5	5	4	2	4	5	5	5
L.O.3	4	5	5	4	5	5	4	2	4	5	5	5
L.O.4	4	4	5	5	5	5	4	2	4	5	5	5
L.O.5	5	4	5	5	5	5	4	2	5	5	5	5
L.O.6	4	5	3	5	4	4	4	4	4	4	4	4
L.O.7	5	5	5	5	5	4	5	4	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Macroeconomics

Macroeconomics

Course Details				
Code	T	A	C	ECTS
2xx	3	0	3	5
Course Name	Macroeconomics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	To provide students with the ability to use theoretical and applied knowledge, interpret, evaluate and analyze data, define economic problems and develop research-based solutions; to provide them with analytical and critical thinking skills and to be able to convey these in written and oral form; to provide them with the necessary foundations to follow macroeconomic policy models and major economic policy discussions in the second term of the course.			
Course Content	Introduction, National income accounts, Income and expenditure, Money, interest and income, Monetary and fiscal policies, Behavioral foundations: Consumption and saving, Investment spending, Demand for money, Central banking, money and credit, Financial Markets and Asset Prices.			
References	E. Ünsal, Makro iktisat, İmaj Yayınevi, 7. Baskı, 2007 G. Mankiw, Makroekonomi, Eflatun Yayınevi, 2009 R. Dornbusch ve S. Fisher, Makroekonomi, Akademi yayını, 1998 F. Özatay, Parasal İktisat, Kuram ve Politika, Efil yayınevi, 2011			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to explain macroeconomic concepts.
2	To be able to learn basic macroeconomic concepts.
3	To be able to understand basic macroeconomic indicators.
4	To be able to examine macroeconomic policies within the framework of the development of macroeconomics.
5	To be able to analyze general balance in macroeconomics within the Classical and Keynesian models.
6	To be able to discuss macroeconomic policies.
7	To be able to draw conclusions through examples based on economic crisis and stability policies.

Weekly Topics and Preparation	
Week	Topics
1. Week	A general overview of macroeconomics, national income, basic macroeconomic problems and policy tools (economic growth problem, inflation problem, unemployment problem, domestic and foreign debt problem)
2. Week	Measuring the Economy I: National Income in General, National Income and National Wealth, Basic National Income Concepts (Gross Domestic Product (Definition and scope, geographical border - a certain period - final goods and services - market prices, Nominal GDP and Real GDP), Gross National Product)
3. Week	Measuring the Economy II: Measuring the Gross Domestic Product (Calculation from the Production Side (Production Method), Calculation from the Sharing Side (Income Method), Calculation from the Expenditure Side (Expenditure Method))
4. Week	Measuring the Economy III: Basic National Income Values: Net Domestic Product, Domestic Product (Domestic Income), Net National Product (National Income), Personal Income, Disposable Income
5. Week	Measurement of the Economy IV: Inflation and Its Measurement (Definition and Scope, Measurement by Index Method, Consumer Price Index, Producer Price Index, GDP Deflator))
6. Week	Measurement of the Economy V: Employment and Its Measurement (Full Employment, Underemployment, Overemployment, Unemployment and Types of Unemployment, Working Age Population, Unemployment, Unemployment Rate and Disadvantages of Unemployment, Types of Unemployment (Open, Hidden, Voluntary, Involuntary, Natural (Frictional, Structural), Cyclical, Seasonal))
7. Week	Basic national income identities
8. Week	Basic national income identities
9. Week	Simple Keynesian Model I: Consumption, Investment, Public Sector Demand, Net Foreign Demand

10. Week	Simple Keynesian Model II: Meaning of National Income Balance, Aggregate Demand Changes and Multiplier Mechanism
11. Week	National Income and Interest Rate I: Equilibrium in the goods market (IS curve), Equilibrium in the money market (LM curve), Equilibrium in goods and money markets together
12. Week	National Income and Interest Rate II: Monetary and Fiscal Policies in Terms of Demand Management
13. Week	Aggregate Demand-Aggregate Supply Model: Aggregate demand curve, Price changes and demand-side equilibrium of the economy, Effects of supply and demand conditions on employment, output and price level
14. Week	Aggregate Demand-Aggregate Supply Model: Aggregate demand curve, Price changes and demand-side equilibrium of the economy, Effects of supply and demand conditions on employment, output and price level

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00
Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	3	5	2	3	2	3	5	4	2	2
L.O.2	5	4	3	5	2	3	2	3	5	5	2	2
L.O.3	5	4	4	4	2	3	2	3	5	5	2	2

L.O.4	5	3	4	4	3	3	2	2	4	3	3	2
L.O.5	4	3	4	5	3	3	3	2	4	4	3	2
L.O.6	4	3	4	5	2	2	3	2	5	4	2	3
L.O.7	5	3	4	5	2	2	3	2	5	4	2	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

THIRD YEAR

FIFTH SEMESTER

Applied Econometrics I

Applied Econometrics I

Course Details				
Code	T	A	C	ECTS
3xx	3	0	3	5
Course Name	Applied Econometrics I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	To develop the skills of students to establish, apply and interpret econometric models suitable for different data types and to identify and solve errors and problems in the modeling process.			
Course Content	Basic concepts related to the econometric model building process, selecting models appropriate for different data types, using dummy variables and interactive terms, detecting and correcting model building and measurement errors; applied analyses with real data sets.			
References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Yardımcı Kaynaklar Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Green, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Practical Explanation Sample Question Solution Computer Aided Instruction			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				

Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define basic econometric concepts and data types.
2	To be able to explain the selection of an appropriate econometric model for the data type.
3	To be able to build and interpret an econometric model.
4	To be able to include dummy variables and interaction terms in the model
5	To be able to define model construction errors and explain the reasons for these errors
6	To be able to evaluate the effects of model construction errors on econometric analysis
7	To be able to interpret the effects of measurement error in econometric models and apply methods to eliminate them.

Weekly Topics and Preparation	
Week	Topics
1. Week	Econometric Method
2. Week	Econometric Model Building
3. Week	Data Types
4. Week	Model Selection According to Data Types
5. Week	Cross-Section Data Models
6. Week	Preference Models
7. Week	Use of Dummy Variables
8. Week	Interaction
9. Week	Application
10. Week	Model Building Errors
11. Week	Detection of Model Building Errors
12. Week	Removal of Model Building Errors
13. Week	Concept of Measurement Error
14. Week	Effects of Measurement Errors on Econometric Models

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload

Midterm	1	1	1
Final Exam	1	1	1
Course Participation	14	3	42
Application/practical	7	1	7
Problem Solving	7	1	7
Self-study	14	2	28
Assignments (Self-study)	2	4	8
Midterm (Self-study)	7	3	21
Final Exam (Self-study)	8	3	24
Reading	14	1	14
Total			153,00
Total Workload / 30 (Hour)			5,10
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	5	4	3	3	4	4	3	3	2	5	3
L.O.3	4	3	3	5	4	3	3	4	4	3	4	5
L.O.4	3	5	2	4	2	5	5	2	2	5	2	3
L.O.5	4	3	4	5	4	3	3	4	4	2	4	5
L.O.6	3	2	2	4	3	2	3	3	3	4	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Univariate Time Series Analysis

Univariate Time Series Analysis

Course Details				
Code	T	A	C	ECTS
3xx	3	0	3	5
Course Name	Univariate Time Series Analysis			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	It is aimed to explain the basic topics in Time Series Econometrics.			
Course Content	Time series components, Concept of stationarity, non-stationary processes, Stationary processes, AR Models, MA Models, ARMA Models, ARIMA Models, Unit root tests, DF and ADF test, Application			
References	Mustafa Sevüktekin ve Mehmet Nargeleşekenler (2010) Ekonometrik Zaman Serileri Analizi EViews Uygulamalı, Nobel Yayın Dağıtım. Yılmaz Akdi (2010) Zaman Serileri Analizi (Birim Kökler ve Kointegrasyon), Gazi Kitabevi. Walter Enders (2004) Applied Econometric Time Series, John Wiley & Sons.			

	Zaman Serilerinin Analizi ve ARIMA Modelleri, Işıl Akgül, Der Yayınları, 2003
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to Analyze the Properties of Time Series
2	To be able to Apply Time Series Econometric Methods
3	To be able to Model ARMA and ARIMA
4	To be able to Make Forecasts
5	To be able to Comment on the Behavior of Economic and Financial Series
6	To be able to Understand the Components of Time Series
7	To be able to Model the Behavior of Economic and Financial Data

Weekly Topics and Preparation	
Week	Topics
1. Week	Time series components
2. Week	Concept of stationarity
3. Week	Non-stationary processes
4. Week	Stationary processes
5. Week	AR Models
6. Week	MA Models
7. Week	MA Models
8. Week	ARMA Models
9. Week	ARIMA Models
10. Week	Unit root tests
11. Week	DF and ADF tests

12. Week	F tests
13. Week	Application
14. Week	Application

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	1	4,00	4,00
Final Exam (Self-study)	1	4,00	4,00
Midterm	1	1,00	1,00
Problem Solving	14	3,00	42,00
Assignments (Self-study)	14	1,00	14,00
Self-study	14	3,00	42,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	3	5	4	3	3	4	2	1	2	2
L.O.2	5	5	4	4	5	4	4	3	2	1	2	3
L.O.3	5	4	3	5	4	3	3	4	4	1	4	2
L.O.4	4	4	3	4	3	3	3	4	4	1	4	2
L.O.5	4	5	5	5	4	3	3	4	2	2	2	2
L.O.6	5	4	2	4	4	3	3	4	2	1	2	2
L.O.7	5	5	4	5	4	3	3	4	4	1	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

SIXTH SEMESTER

Applied Econometrics II

Applied Econometrics II

Course Details				
Code	T	A	C	ECTS
3xx	3	0	3	5
Course Name	Applied Econometrics II			
Course Language	Turkish			

Course Level	Undergraduate
Course Type	Compulsory
Prerequisites	None
Course Objective	The aim of this course is to develop the students' skills in establishing single and multi-equation econometric models, analyzing endogeneity and identification problems, and selecting and applying appropriate models and estimation methods.
Course Content	Single and multi-equation economic models, static and dynamic structures, endogeneity and determination problems, instrumental variables, piecewise regression, structural and simultaneous equation models, and construction and estimation of general equilibrium models.
References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Yardımcı Kaynaklar Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Green, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.
Planned Learning Activities and Teaching Methods	Theoretical presentation Lecture Computer Aided Instruction Applied Explanation
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define a given problem, determine its critical points and transform it into flow charts.
2	To be able to code loop and decision structures.
3	To be able to code the solution prepared as a flow chart in the language of the open-source program.
4	To be able to run and test the program and fix syntax and runtime errors.

5	To be able to install and run libraries in the open-source program.
6	To be able to solve and interpret statistical and econometric problems with the help of the open-source programming language.
7	To be able to visualize the data appropriately.

Weekly Topics and Preparation	
Week	Topics
1. Week	Single Equation Economic Models
2. Week	Static Econometric Models
3. Week	Dynamic Econometric Models
4. Week	Endogeneity Problem
5. Week	Instrumental Variable Method
6. Week	Model Selection
7. Week	Piecewise Regression
8. Week	Multi-Equation Economic Models
9. Week	Structural Econometric Models
10. Week	Simultaneous Equation Models
11. Week	Determination Problem
12. Week	Estimation of Simultaneous Equation Models
13. Week	Estimation of Simultaneous Equation Models
14. Week	General Equilibrium Models

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	7	1,00	7,00
Self-study	14	2,00	28,00
Assignments (Self-study)	2	4,00	8,00

Midterm (Self-study)	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	14	1,00	14,00
Total			153,00
Total Workload / 30 (Hour)			5,10
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	4	3	3	2	4	3	3	2	5	3
L.O.3	4	3	3	5	4	3	3	4	4	4	4	5
L.O.4	3	5	2	4	2	3	2	5	2	5	2	3
L.O.5	4	4	4	5	4	3	5	4	4	2	4	2
L.O.6	3	2	2	4	3	2	3	3	3	5	3	4
L.O.7	4	3	3	5	4	3	4	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Multivariate Time Series Analysis

Multivariate Time Series Analysis

Course Details				
Code	T	A	C	ECTS
3xx	3	0	3	5
Course Name	Multivariate Time Series Analysis			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	It is aimed to explain the basic topics in Time Series Econometrics with the support of econometric package program(s).			
Course Content	Examination of stationarity, Unit root tests that do not consider structural break, Unit root tests that take into account structural break, Cointegration, ARDL Model and Granger Causality, VAR Model, Impulse-response and variance decomposition analyses, Structural VAR Model and Error correction mechanism, VECM Model, Application			
References	Mustafa Sevüktekin ve Mehmet Nargeleşkenler (2010) Ekonometrik Zaman Serileri Analizi EViews Uygulamalı, Nobel Yayın Dağıtım. Yılmaz Akdi (2010) Zaman Serileri Analizi (Birim Kökler ve Kointegrasyon), Gazi Kitabevi. Walter Enders (2004) Applied Econometric Time Series, John Wiley & Sons. William. W. S. Wei (2006) Time Series Analysis Univariate and Multivariate Methods, Pearson.			
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Sample Question Solution			

	Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to analyze seasonality characteristics of time series.
2	To be able to test stationarity and unit root.
3	To be able to make VAR Analysis.
4	To be able to make Cointegration Analysis.
5	To be able to make Causality Analysis.
6	To be able to model co-movement of economic and financial data.
7	To be able to understand time series components.

Weekly Topics and Preparation	
Week	Topics
1. Week	Investigation of stationarity
2. Week	Unit root tests that do not consider structural breaks
3. Week	Unit root tests that do not consider structural breaks
4. Week	Unit root tests that consider structural breaks
5. Week	Unit root tests that consider structural breaks
6. Week	Co-integration
7. Week	Co-integration
8. Week	ARDL Model and Granger Causality
9. Week	VAR Model and analysis: Impulse-response and variance decomposition analyses
10. Week	VAR Model and analysis: Impulse-response and variance decomposition analyses
11. Week	Structural VAR Model and Error correction mechanism (ECM)
12. Week	VECM Model
13. Week	Application
14. Week	Application

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	1,00	1,00
Course Participation	14	2,00	42,00
Application/practical	1	4,00	4,00
Final Exam (Self-study)	1	4,00	4,00
Midterm	1	1,00	1,00
Problem Solving	14	3,00	42,00
Assignments (Self-study)	14	1,00	14,00
Self-study	14	3,00	42,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	3	3	3	2	1	2	3
L.O.2	5	5	4	4	3	2	4	4	1	1	1	3
L.O.3	4	5	4	5	3	2	4	4	1	1	1	4
L.O.4	5	4	4	5	3	2	4	4	1	1	1	4
L.O.5	5	5	4	5	3	2	4	4	1	1	1	4
L.O.6	4	5	4	5	3	4	4	4	1	1	1	4
L.O.7	5	4	2	4	4	3	3	4	2	1	2	2

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

FOURTH YEAR

SEVENTH SEMESTER

Multicriteria Decision Making

Multicriteria Decision Making

Course Details				
Code	T	A	C	ECTS
4xx	3	0	3	5
Course Name	Multicriteria Decision Making			
Course Language	Turkish			

Course Level	Undergraduate
Course Type	Compulsory
Prerequisites	None
Course Objective	The main objective of the course is to examine the decision-making process and different decision-making methods. To provide awareness of decision environments where different alternative situations that contradict each other are involved.
Course Content	Introduction to multi-criteria decision making (MCDM), basic approaches to multi-criteria decision making, formulation and classification of multi-criteria decision problems, multi-objective optimization approach, applications in areas related to the department.
References	Yaralıoğlu, K. (2010). Karar Verme Yöntemleri, Ankara: Detay Yayıncılık. Triantaphyllou, E., 2000 Multi-Criteria decision making methods: a comparative study, Springer Gal, T., et al., Multicriteria decision making: advances in MCDM models, algorithms, theory and applications, Springer, 1999 Hwang, C. L.; Yoon, K. Multiple Attribute Decision Making: A State of the Art Survey, New York: Springer-Verlag, 1981
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Assignment
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems in the field.
2	To be able to apply appropriate theoretical infrastructure for solving problems.
3	To be able to evaluate basic solutions to problems.
4	To be able to solve with the help of computer programs.
5	To be able to define data on the computer.
6	To be able to read literature.
7	To be able to develop models on different subjects.

Weekly Topics and Preparation	
Week	Topics
1. Week	Multi-Criteria Decision Models Scope, Components, Classification, Purpose
2. Week	AHP Method
3. Week	ANP Method
4. Week	Entropy Method
5. Week	Topsis Method
6. Week	Topsis Method Applications
7. Week	Electre Method
8. Week	Electre Method Applications
9. Week	PROMETHEE I_II
10. Week	PROMETHEE I_II Applications
11. Week	VIKOR METHOD
12. Week	CP Method
13. Week	Maut Benefit Analysis
14. Week	Mixed Applications

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			150,00

Total Workload / 30 (Hour)	4,70
ECTS	5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	5	5	5	5	4	2	4	5	5	5
L.O.4	4	5	4	5	4	4	3	3	4	4	5	5
L.O.5	5	4	5	5	5	4	3	3	5	5	4	4
L.O.6	4	5	5	4	5	5	4	2	4	4	4	4
L.O.7	5	5	5	5	5	5	4	2	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

EIGHTH SEMESTER

Panel Data Econometrics

Panel Data Econometrics

Course Details				
Code	T	A	C	ECTS
4xx	3	0	3	5
Course Name	Panel Data Econometrics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Compulsory			
Prerequisites	None			
Course Objective	Understanding and creating panel data sets, understanding modeling of unobservable effects, recognizing and estimating Fixed Effects and Random Effects models, selecting the appropriate panel data model.			
Course Content	One-Way and Two-Way Fixed Effects Models, Least Squares Dummy Variable Method, Fixed Effects and Random Effects Panel Data Models, Within-Group Estimator, Extended Least Squares Estimator, Hausman Test, Apparently Unrelated Models.			
References	Ferda Yerdelen Tatoğlu (2012) Panel Veri Ekonometrisi Stata Uygulamalı, BETA. Ferda Yerdelen Tatoğlu (2012) İleri Panel Veri Analizi Stata Uygulamalı, BETA. H. Baltagi (2008) Econometric Analysis of Panel Data, John Wiley & Sons. Jeffrey. M. Wooldridge (2001) Econometric Analysis of Cross Section and Panel Data, The MIT Press.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion			
Other Recommended	Will be announced at the beginning of the semester.			

Issues for the Course	
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in the field of Panel Data Econometrics.
2	To be able to use the Panel Data Analysis research method.
3	To be able to recognize and create panel data sets.
4	To be able to know the basic assumptions of Panel Data models.
5	To be able to model unobservable effects.
6	To be able to analyze one-way and two-way effects.
7	To be able to recognize and estimate Fixed and Random Effects models.
8	To be able to choose the appropriate panel data model.

Weekly Topics and Preparation	
Week	Topics
1. Week	Panel data econometrics
2. Week	Panel data sets
3. Week	Unobserved heterogeneity
4. Week	Pooled Least Squares Method
5. Week	One-Way Fixed Effects Models
6. Week	Two-Way Fixed Effects Models
7. Week	Two-Way Fixed Effects Models
8. Week	Fixed Effects and Random Effects Panel Data Models
9. Week	First Difference Method
10. Week	Dummy Variable Least Squares Estimation Method
11. Week	Within-Group Estimation Method
12. Week	Hausman Test and Model Selection
13. Week	Diagnostic Tests
14. Week	Diagnostic Tests

Assessment Methods (%)

1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	7	1,00	7,00
Self-study	14	2,00	28,00
Assignments	2	4,00	8,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			151,00
Total Workload / 30 (Hour)			5,03
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	4	4	4	4	4	3	3	2	4
L.O.2	5	5	4	4	4	4	4	4	3	3	2	4
L.O.3	4	4	4	4	4	3	3	4	3	3	2	4
L.O.4	5	5	4	5	5	4	4	4	3	2	3	4
L.O.5	5	5	4	5	5	4	4	4	3	2	3	4
L.O.6	4	4	4	5	4	4	4	4	4	2	3	5
L.O.7	5	5	5	5	5	4	5	5	4	2	3	4
L.O.8	5	5	5	4	4	4	4	5	3	2	3	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Elective Pool

Computer Applied Operations Research

Computer Applied Operations Research

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Computer Applied Operations Research			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			

Prerequisites	None
Course Objective	Operations Research methods are used for the purpose of defining the problem, entering data and solving it using different computer programs.
Course Content	Within the scope of the course, Linear Programming Model, Integer Programming Model, Goal Programming Model, Game Theory, Nonlinear Programming, Inventory Management, Markov Analysis, Simulation, Queue Models, Transportation Models, Assignment Models and network problems will be analyzed with MS Excel (solver add-on), WinQSP, Lindo programs with application examples.
References	Yöneticiler için Bilgisayar Destekli Karar Modelleri (Excel ile modelleme ve Çözüm Uygulamaları) Prof. Dr. Öner Esen,2008 Yöneylem Araştırması, Ahmet ÖZTÜRK, Ekin Yayınevi, İstanbul, 2012 Operations Research: Applications and Algorithms, Wayne L. Winston, Thomson Brooks/Cole, 2004 Yöneylem Araştırması Aydın Ulucan, Siyasal Kitabevi, 2001
Planned Learning Activities and Teaching Methods	Theoretical Presentation Question and Answer Computer Aided Instruction Project Assignment Group Work
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems in the field.
2	To be able to use a software program to solve problems.
3	To be able to evaluate basic solutions to problems.
4	To be able to use techniques that will help to find the nature of the problems that may be encountered and to solve them.
5	To be able to analyze decision environments.
6	To be able to apply in Excel programs with Lingo, Lindo, Gams, Mathtype, Solver add-ons.
7	To be able to recognize and use different modeling programs.

Weekly Topics and Preparation	
Week	Topics
1. Week	MS Excel Introduction, Menu Usage, Functions and Solver Add-in Introduction
2. Week	Linear Programming and Applications
3. Week	Integer Programming and Applications
4. Week	Goal Programming and Applications
5. Week	Nonlinear Programming and Applications
6. Week	Game Theory and Applications
7. Week	Decision Analysis and Applications
8. Week	Stock Theory and Applications
9. Week	Markov Analysis and Applications
10. Week	Queue Theory and Applications
11. Week	Simulation and Applications
12. Week	Transportation Models and Applications
13. Week	Assignment Models and Applications
14. Week	Network Models and Applications

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00

Total Workload / 30 (Hour)	4,70
ECTS	5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	4
L.O.2	4	4	5	5	5	5	4	3	4	5	5	4
L.O.3	4	4	4	5	5	5	5	3	4	4	4	5
L.O.4	4	5	4	4	4	4	5	2	4	4	4	5
L.O.5	5	5	5	5	5	5	4	2	5	5	5	5
L.O.6	4	5	5	5	5	5	4	2	4	5	5	5
L.O.7	4	5	5	5	5	5	4	2	4	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Big Data

Big Data

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Big Data			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to teach the basics of the concept of Big Data, its basic methods and techniques, and to provide the ability to apply and interpret them.			
Course Content	Definition of Big Data, History of Big Data, Big Data components, Big Data components, Big Data examples, Big Data Analysis Techniques, Quantitative and qualitative data mining, Statistical analysis, Machine Learning, Semantic analysis, Visual data analysis, Visualization in Big Data Sets			
References	Gürsakal, N. (2021). Büyük Veri, Dora Yayınları Çağlayan Akay, E. (2020). Ekonometride Büyük Veri ve Makine Öğrenmesi: Temel Kavramlar, Der Yayınları Big Data Fundamentals: Concepts, Drivers & Techniques (1st ed.). Thomas Erl, Wajid Khattak, and Paul Buhler. Prentice Hall Press, Upper Saddle River, NJ, USA. 2016. Big Data, Principles and Best Practices of Scalable Realtime Data Systems, Nathan Marz and James Warren, Manning Publications 2015.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Sample Application Presentation			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			

Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the concept of big data.
2	To be able to explain the components related to the concept of big data.
3	To be able to know the current application areas.
4	To be able to analyze big data.
5	To be able to perform empirical applications based on real data.
6	To be able to use computer software for applications based on real data.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition of Big Data
2. Week	History of Big Data
3. Week	Big Data components
4. Week	Big Data components
5. Week	Big Data examples
6. Week	Big Data Analysis Techniques
7. Week	Quantitative and qualitative data mining
8. Week	Statistical analysis
9. Week	Machine Learning
10. Week	Semantic analysis
11. Week	Visual data analysis
12. Week	Visualization in Big Datasets
13. Week	Application -1
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation

Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	3	3	3	3	3	4	3	3	2	3	3
L.O.2	5	4	4	4	4	3	4	4	4	2	4	3
L.O.3	4	4	5	4	4	3	4	4	3	2	4	3
L.O.4	5	4	4	5	4	4	4	4	4	2	4	4
L.O.5	5	4	4	5	4	4	4	4	4	2	5	4
L.O.6	5	4	3	4	4	3	3	3	5	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Multivariate Statistics

Multivariate Statistics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Multivariate Statistics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The purpose of this course is to explain multivariate analysis methods and to convey the applications of these methods with computer programs to the student.			
Course Content	In this course, multivariate normal distribution and its importance, multivariate analysis of variance, multivariate regression models, variable selection, validity and reliability tests, factorial experimental design will be conveyed with their applications.			
References	Reha Alpar (2011). Uygulamalı Çok Değişkenli İstatistiksel Yöntemlere Giriş 1. Detay Yayıncılık Necmi Gürsakal (2014). Çıkarımsal İstatistik. Dora Yayıncılık			

	Richard A. Johnson, Dean W. Winchurn (2013). Applied multivariate statistical analysis Nobel Akademik Yayıncılık. Ali Sait Albayrak (2006). Uygulamalı Çok Değişkenli İstatistik Teknikleri. Asil Yayın Dağıtım
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn the theory of multivariate analysis.
2	To be able to understand the assumptions of multivariate statistical techniques.
3	To be able to learn the areas of use of multivariate analysis.
4	To be able to perform multivariate analysis with a computer program.
5	To be able to test assumptions for multiple analyses.
6	To be able to select variables for multivariate analyses.
7	To be able to test different estimation methods with a specific model and explain the results.

Weekly Topics and Preparation	
Week	Topics
1. Week	Basic concepts related to multivariate analysis.
2. Week	Descriptive statistics in multivariate analysis
3. Week	Standardization
4. Week	Multivariate Normal Distribution, Multivariate hypothesis testing
5. Week	Multivariate analysis of variance (MANOVA)
6. Week	Multivariate hypothesis testing and MANOVA applications
7. Week	Question solutions
8. Week	Principal Component Analysis
9. Week	Principal Component Analysis applications

10. Week	Factor Analysis
11. Week	Factor Analysis applications
12. Week	Reliability and validity tests
13. Week	Missing data and their examination
14. Week	Question solutions

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	7	2,00	14,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	7	1,00	7,00
Midterm (Self-study)	6	2,00	12,00
Final Exam (Self-study)	7	2,00	14,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	4	3	3	2	5	3	3	2	5	5
L.O.3	4	3	3	5	4	3	3	4	4	4	4	2
L.O.4	3	5	2	4	2	3	3	5	2	5	2	3
L.O.5	4	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	2	3	3	2	3	4

L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Dynamic Programming

Dynamic Programming

Course Details

Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Dynamic Programming			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Solving, recognizing and modeling the application steps of the Dynamic Programming method, one of the optimization methods, for problems related to the economy. Recognizing the decision processes that follow each other in succession and developing decision models for the problems that occur under these conditions.			
Course Content	The definition of the concept of situation and the concept of optimization in Dynamic Programming includes the definition and formulation of the components and principles of important decision problems encountered in businesses.			
References	Yöneylem Araştırması, A. Hamdy TAHA, Literatür Yayıncılık, Ankara, 2001 Denardo, E.V. (1982), Dynamic Programming: Models and Applications Prentice-Hall, Inc., Englewood Cliffs, New Jersey. Yöneylem Araştırması, Prof. Dr. Nalan CİNEMRE , Evrim Kitabevi, 2011 Operations Research, Wayne L.WINSTON, Thomson, Fourth Edition,2004			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems with a sequential sequence of operations.
2	To be able to simplify and solve complex problems.
3	To be able to define economic problems and different decision processes.
4	To be able to model problems related to the field.
5	To be able to solve problems formulated with the dynamic programming method with the help of computers.

6	To be able to write algorithm structures and components.
7	To be able to use algorithm features on the computer.

Weekly Topics and Preparation	
Week	Topics
1. Week	Dynamic Programming, Definition, Basic Concepts, Methodology, Components, Assumptions
2. Week	Principles of Dynamic Programming
3. Week	Shortest path problems
4. Week	Knapsack problems
5. Week	Capital budgeting problems
6. Week	Investment planning problems
7. Week	Stock Control/Production Planning Problems
8. Week	Machine Location Problems
9. Week	Machine Scheduling Problems
10. Week	Work Force Planning Problems
11. Week	Solution Algorithms-Zangwill Algorithm
12. Week	Silver Meal Heuristic Algorithm
13. Week	Dynamic Ordering Algorithms
14. Week	Wagner-Whitin Algorithm

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00

Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	5	5	5	5	5	5	5
L.O.2	4	3	5	4	4	5	4	4	4	4	5	3
L.O.3	5	5	4	5	5	5	5	4	5	5	4	5
L.O.4	4	3	5	4	4	5	4	5	5	4	4	3
L.O.5	5	5	4	5	5	5	5	5	5	5	5	5
L.O.6	4	3	5	4	4	5	4	5	5	5	5	3
L.O.7	4	5	5	5	5	5	5	5	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Nonlinear Econometric Models

Nonlinear Econometric Models

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Nonlinear Econometric Models			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to teach, apply and interpret nonlinear time series methods.			
Course Content	Linearity concept, linearity tests, nonlinear models, TAR and STAR models, nonlinear unit root tests, nonlinear cointegration and error correction models.			
References	Prof. Dr. Burak Gürış, "R uygulamalı Doğrusal Olmayan Zaman Serileri Analizi", DER yayınları İstanbul, 2020. Durgun, F. (2023). Uygulamalı Doğrusal Olmayan Zaman Serileri Analizi, Özgür Yayınları Bildirici vd. (2000). İktisatta Kullanılan Doğrusal Olmayan Zaman Serisi Yöntemleri, Türkmen Kitabevi. Kantz, H. ve Schreiber, T. (2004). Nonlinear Time Series Analysis, Second Edition, Cambridge University Press			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Computer Assisted Instruction			
Other Recommended	Will be announced at the beginning of the semester.			

Issues for the Course	
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to recognize nonlinear structures.
2	To know the concepts of nonlinearity in econometric models.
3	To know the assumptions of nonlinear econometric models.
4	To be able to use the methods used in nonlinear time series analysis.
5	To be able to establish nonlinear econometric models.
6	To be able to estimate nonlinear econometric models.
7	To be able to interpret the estimates of nonlinear econometric models.
8	To be able to perform empirical applications based on real data.
9	To be able to use computer software to apply nonlinear time series methods.

Weekly Topics and Preparation	
Week	Topics
1. Week	Linearity Concept
2. Week	Linearity Tests
3. Week	Linearity Tests
4. Week	Nonlinear Models
5. Week	TAR Models
6. Week	TAR Models
7. Week	STAR Models
8. Week	STAR Models
9. Week	Application -1
10. Week	Nonlinear unit root tests
11. Week	Nonlinear unit root tests
12. Week	Nonlinear cointegration and error correction models
13. Week	Nonlinear cointegration and error correction models
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	4	3	3	4	3	3	3
L.O.2	5	4	3	4	4	4	3	3	4	3	4	3
L.O.3	4	4	3	4	4	4	3	3	4	4	4	3
L.O.4	4	5	4	5	5	5	4	4	5	3	4	4
L.O.5	5	5	4	5	5	5	4	4	5	4	3	3
L.O.6	5	5	4	5	5	5	4	4	5	3	4	3
L.O.7	5	5	4	5	5	5	4	4	5	4	4	4
L.O.8	5	5	4	5	5	5	4	4	5	4	4	4
L.O.9	4	4	3	5	4	5	4	4	5	4	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Simulation in Econometrics

Simulation in Econometrics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Simulation in Econometrics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			

Course Objective	The aim of the course is for students to see the properties of the OLS estimator in econometrics (in cases such as small and large sample characteristics, violation of KDRM assumptions) using Monte Carlo simulations.
Course Content	Monte Carlo, Random Number Generation, Properties of Least Squares Estimators in Case of Deviations from Assumptions, Data Generation Processes, Critical Value Generation.
References	Fikri Öztürk ve Levent Özbek, Matematiksel Modelleme ve Simülasyon, Gazi Kitabevi, 2009 Hüseyin Güler, İstatistiksel Simülasyon Ders Notları, Adana, 2015 Sheldon Ross, Simulation, Elsevier, 2013 Jan Frederik Kiviet, Monte Carlo Simulation for Econometricians, 2012
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Sample Question Solution Discussion Applied Explanation Computer Aided Instruction
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn about simulation technology and techniques.
2	To be able to gain the ability to form a basis for the necessity of simulation.
3	To have the opportunity to learn the skill of designing virtual experiments.
4	To be able to solve a theoretical problem by coding.
5	To be able to simulate the critical values of the statistical and econometric tests used.
6	To be able to prove the Statistics and Econometrics theories learned by computer.
7	To be able to have information about data generation processes.

Weekly Topics and Preparation	
Week	Topics
1. Week	Monte Carlo Simulation Technique

2. Week	Random Number Generators
3. Week	Obtaining the Distributions of OLS Estimators (Point Estimation and Confidence Interval)
4. Week	Examination of the Properties of OLS Estimators in the Case of Autocorrelation
5. Week	Examination of the Properties of OLS Estimators in the Case of Heteroscedasticity
6. Week	Examination of the Properties of OLS Estimators in the Case of Model Building Errors-I
7. Week	Examination of the Properties of OLS Estimators in the Case of Model Building Errors-II
8. Week	Simulation of Stationary Time Series Processes-I
9. Week	Simulation of Stationary Time Series Processes-II
10. Week	Data Generation Process in Nonlinear Models-I
11. Week	Data Generation Process in Nonlinear Models-II
12. Week	Bootstrap Inference-I
13. Week	Bootstrap Inference-II
14. Week	Monte Carlo Simulation Technique

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00
Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	3	5	5	3	4	2	5	2	5	3
L.O.2	5	5	4	5	5	4	5	3	5	2	5	3
L.O.3	3	4	4	4	5	4	5	3	4	1	4	4
L.O.4	3	4	3	4	5	3	5	3	5	1	5	2
L.O.5	5	5	4	3	5	3	5	3	5	1	5	2
L.O.6	5	5	4	3	4	2	5	3	5	1	5	2
L.O.7	4	5	3	3	4	3	4	3	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Econometric Models and Methods

Econometrics Models and Methods

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Econometrics Models and Methods			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Identify and estimate different econometric models and determine the appropriate econometric model.			
Course Content	Piecewise regression, linear regression model passing through zero point, essentially linear regression models, inverse models, distributed lag models, instrumental variable method, simultaneous equation models, model construction errors and model selection			
References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Green, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				

Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the basics of econometric modeling.
2	To be able to build dynamic econometric models.
3	To be able to know qualitative dependent variable models.
4	To be able to recognize various single equation econometric models.
5	To be able to recognize and estimate simultaneous econometric models.
6	To be able to know and detect modeling errors.
7	To be able to develop appropriate solutions in case of modeling errors.
8	To be able to choose between different econometric models.

Weekly Topics and Preparation	
Week	Topics
1. Week	Piecewise regression
2. Week	Chow Test
3. Week	Linear regression model passing through zero point
4. Week	Intrinsically linear regression models
5. Week	Inverse models
6. Week	Distributed Lag Models
7. Week	Koyck and Almon Approach
8. Week	Autoregressive Models
9. Week	Qualitative Dependent Variable Models
10. Week	Instrumental Variable Method
11. Week	Simultaneous Equation Models
12. Week	Estimation of Simultaneous Equation Models
13. Week	Model Fitting Errors
14. Week	Model Selection Criteria

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	4	4	4	4	4	4	3	2	2	4
L.O.2	4	5	4	4	5	4	4	4	3	2	3	4
L.O.3	4	4	4	4	4	3	3	4	3	2	3	4
L.O.4	5	5	5	5	5	4	4	4	3	2	3	4
L.O.5	5	5	5	5	5	4	4	4	3	3	3	4
L.O.6	4	4	4	5	4	4	4	5	4	3	3	5
L.O.7	4	4	4	5	4	4	4	5	4	2	2	5
L.O.8	4	4	4	4	4	4	4	4	4	3	3	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Econometric Estimation Methods

Econometric Estimation Methods

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Econometric Estimation Methods			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Learning and using estimation methods for econometric models that require different assumptions.			
Course Content	Least Squares Estimation Method, OLS assumptions, Generalized Least Squares Method, Weighted Least Squares Method, Instrumental Variable Method, Method of Moments, Generalized Method of Moments, Maximum Likelihood Method, Partial Least Squares Method, Semi-Parametric and Non-Parametric Methods			

References	Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Greene, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen. Baltagi, B. H. (2021). Econometrics, Springer.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the estimation methods based on OLS
2	To be able to use Maximum Likelihood estimators
3	To be able to use the instrumental variable method
4	To be able to distinguish the differences between different estimators
5	To be able to choose between different estimators.
6	To be able to use different estimation methods in applied studies.
7	To be able to use different estimation methods in computer environment.

Weekly Topics and Preparation	
Week	Topics
1. Week	Least Squares Estimation Method
2. Week	LSC assumptions
3. Week	Generalized Least Squares Method
4. Week	Weighted Least Squares Method
5. Week	Instrumental Variable Method
6. Week	Instrumental Variable Method
7. Week	Method of Moments
8. Week	Method of Moments

9. Week	Generalized Method of Moments
10. Week	Maximum Likelihood Method
11. Week	Maximum Likelihood Method
12. Week	Partial Least Squares Method
13. Week	Semi-Parametric and Non-Parametric Methods
14. Week	Semi-Parametric and Non-Parametric Methods

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	3	2	2	3	2	3	3
L.O.2	5	4	3	4	4	3	2	2	3	2	3	3
L.O.3	5	4	3	4	4	3	2	2	3	2	3	3
L.O.4	4	3	3	4	4	3	3	3	4	3	3	4
L.O.5	4	3	3	4	4	3	3	3	4	3	3	4
L.O.6	5	5	4	5	5	4	4	4	5	4	5	5
L.O.7	5	5	4	5	5	4	4	4	5	4	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Economic Indicators

Economic Indicators

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Economic Indicators			
Course Language	Turkish			

Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	Gaining the ability to interpret the structure of the economy under study using microeconomic and macroeconomic indicators.
Course Content	Data Types, Data Sources, Indexes, Employment Indicators, Consumption Expenditure Indicators, National Output and Stock Indicators, Housing Indicators, Inflation, Price Indices and Monetary Indicators, Foreign Exchange and Capital Market Indicators, Foreign Trade and Balance of Payments Indicators, Wage, Productivity and Price Indicators, International Economic Indicators, Development Indicators, Regional Indicators
References	Çepni, Elif (2015) Ekonomik ve Finansal Göstergeler Rehberi, Seçkin. Çolak, Ömer Faruk ve Aktaş, Alaattin (2009) Makro Ekonomik Göstergelerin Yorumlanması, Efil Yayınevi. Baumohl, Bernard (2013) The Secrets of Economic Indicators, Pearson. Akyıldız, Fatih (2017) Ekonomik Ne Anlatıyor? Türkiye İçin İktisadi Göstergeler Rehberi, İstanbul Bilgi Üniversitesi Yayınları.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand basic economic indicators.
2	To know the measurement methods of basic economic indicators.
3	To be able to understand regional indicators.
4	To be able to produce indices.
5	To be able to produce basic statistics from indicators.
6	To be able to visualize indicators.
7	To be able to analyze the structure of the economy under study using indicators.

Weekly Topics and Preparation

Week	Topics
1. Week	Data Types
2. Week	Data Sources
3. Week	Indices
4. Week	Employment Indicators
5. Week	Consumption Expenditure Indicators
6. Week	National Output and Stock Indicators
7. Week	Housing Indicators
8. Week	Inflation, Price Indices and Monetary Indicators
9. Week	Foreign Exchange and Capital Market Indicators
10. Week	Foreign Trade and Balance of Payments Indicators
11. Week	Wage, Productivity and Price Indicators
12. Week	International Economic Indicators
13. Week	Development Indicators
14. Week	Regional Indicators

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12

L.O.1	5	4	3	4	3	3	4	4	3	2	3	3
L.O.2	5	4	3	4	3	3	3	3	3	2	3	3
L.O.3	4	4	3	4	4	4	4	4	3	2	3	3
L.O.4	4	4	3	4	4	3	4	4	3	2	4	3
L.O.5	4	4	3	5	4	4	4	4	4	2	5	4
L.O.6	3	3	4	4	4	3	4	5	4	3	4	4
L.O.7	4	4	5	5	4	4	4	4	4	3	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Finance Mathematics

Finance Mathematics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Finance Mathematics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Teaching mathematical operations required in financial calculations, in addition to basic financial knowledge.			
Course Content	The course content includes topics such as interest theory, simple interest, compound interest, simple discount, compound discount, continuous interest and annuity calculations, calculating the value of money market instruments, and project evaluation methods.			
References	Korkmaz, T., ve Pekkaya, M., Excel Uygulamalı Finans Matematiği, Ekin Yayınevi, Ankara, 2004 Ertuğrul Çetiner (2006). Ticari ve Mali Matematik, 3.B. Gazi Kitabevi Stephen A. Ross, Randolph W. Westerfield, Bradford D. Jordan (2008). Corporate Finance Fundamentals 8th ed. McGraw-Hill.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to learn basic financial concepts and interest formation.

2	To be able to handle different financial problems and offer solutions.
3	To be able to handle financial mathematics concepts from a mathematical and statistical perspective.
4	To be able to make interest and discount calculations.
5	To be able to make Continuous Compound Interest calculations.
6	To be able to evaluate money market instruments.
7	To be able to solve problems related to all topics covered.

Weekly Topics and Preparation	
Week	Topics
1. Week	General concepts and Interest Theory
2. Week	Simple interest (internal and external simple interest calculations
3. Week	Simple Discount (internal and external simple interest calculations
4. Week	Compound Interest calculations
5. Week	Compound Discount calculations
6. Week	Continuous Compound Interest calculations
7. Week	Application -1
8. Week	Definition of money and capital market instruments
9. Week	Price calculations of money market instruments
10. Week	Annuity calculations
11. Week	Annuity calculations
12. Week	Project evaluation methods
13. Week	Project evaluation methods
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	12	1,00	12,00
Problem Solving	14	1,00	14,00

Self-study	14	2,00	28,00
Midterm (Self-study)	7	2,00	14,00
Final Exam (Self-study)	8	2,00	16,00
Reading	14	1,00	14,00
Total			142,00
Total Workload / 30 (Hour)			4,73
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	4	3	3	2	5	3	3	2	5	5
L.O.3	4	3	3	5	4	3	3	4	4	4	4	2
L.O.4	3	5	2	3	2	3	3	5	2	5	2	3
L.O.5	5	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	2	3	5	2	3	4
L.O.7	4	3	3	5	4	3	3	4	4	2	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Financial Econometrics

Financial Econometrics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Financial Econometrics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course introduces the student to a comprehensive set of methods used in financial econometrics and their practical applications. The course aims to create an econometric background that will enable the analysis of a financial data set.			
Course Content	Time Series in Economics and Finance, regression analysis, stationarity analysis, Financial Asset Pricing Model (CAPM), Arbitrage Pricing Model (APM), ARIMA and ARCH-GARCH Models, Forecasting and Forecasting of Stock Returns			
References	Çil, N. (2018). Finansal ekonometri. Der Yayınları, İstanbul. Ural, M. ve Aydın, Ü. (2021). Finansal Ekonometri Uygulamaları Kavram-Teori-Uygulama, Seçkin Yayıncılık Linton, O. (2019), Financial Econometrics Models and Methods, Cambridge University Press. Fabozzi vd. (2014). The Basics of Financial Econometrics Tools, Concepts, and Asset Management Applications, Wiley.			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to recognize the characteristics of financial time series.
2	To be able to use the concepts, theories and assumptions of financial econometrics.
3	To be able to use the methods used in financial time series analysis.
4	To be able to perform empirical applications based on real financial data.
5	To be able to use computer software to apply financial time series methods.
6	To be able to evaluate financial markets and develop investment strategies.
7	To be able to perform risk analysis in financial fields and use different techniques.

Weekly Topics and Preparation	
Week	Topics
1. Week	Time Series in Economics and Finance
2. Week	Regression Analysis and Basic Forecasting Methods
3. Week	Stationarity Analysis
4. Week	Financial Asset Pricing Model (CAPM)
5. Week	Arbitrage Pricing Model (APM)
6. Week	CAPM and APM Applications
7. Week	Application -1
8. Week	ARIMA Models
9. Week	ARIMA Models
10. Week	ARCH and GARCH Models
11. Week	Applications of ARCH and GARCH Models
12. Week	Stock Return Forecasting

13. Week	Application -2
14. Week	Time Series in Economics and Finance

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	4	3	3	2	5	3	3	2	5	5
L.O.3	4	3	3	5	4	3	3	4	4	4	4	2
L.O.4	3	5	2	4	2	3	3	5	2	5	2	3
L.O.5	4	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	2	3	3	2	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Entrepreneurship

Entrepreneurship

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Entrepreneurship			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			

Course Objective	The basic concepts related to entrepreneurship are to create success criteria and a roadmap. It aims to explain the necessary paths and define the processes for the emergence and realization of innovative ideas.
Course Content	It covers the basic concepts, historical development process, operational process, difficulties encountered in this process and solutions for candidates on the way to realize their own business, project and dreams.
References	Güney, S. (2008). Girişimcilik, Temel Kavramlar ve Bazı Güncel Konular. Ankara: Siyasal Kitabevi. Marangoz, M. (2017). Girişimcilik. İstanbul: Beta Yayınları. Küçük, O. (2017). Girişimcilik ve Küçük İşletme Yönetimi, Ankara: Seçkin Yayınevi Gladwell M. Outliers (Çizginin Dışındakiler) Bazı İnsanlar Neden Daha Başarılı Olur? Mediacat Yayıncılık
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to recognize concepts about entrepreneurship.
2	To be able to recognize concepts about current issues in the field of entrepreneurship.
3	To be able to project a business idea.
4	To be able to prepare a demand plan for a business idea.
5	To be able to prepare a budget plan for a business idea.
6	To be able to find sustainable solutions to complex problems.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction, Entrepreneurship Concept, Development
2. Week	Principles, Management, Concepts
3. Week	Successful Entrepreneurship Stories

4. Week	Types of Entrepreneurships
5. Week	Business Idea Sources
6. Week	Demand Planning
7. Week	Entrepreneurship Establishment Process
8. Week	Entrepreneurship Establishment Process
9. Week	Entrepreneurship Management Systems
10. Week	Entrepreneurship Production Planning
11. Week	Entrepreneurship Distribution Network Design
12. Week	Project Ideas
13. Week	Project presentations
14. Week	Project presentations

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12

L.O.1	5	4	5	4	3	3	4	4	3	2	2	4
L.O.2	5	4	4	4	3	3	4	4	3	2	2	4
L.O.3	4	5	4	5	5	5	4	5	4	3	4	5
L.O.4	4	5	5	5	5	5	4	5	4	3	4	5
L.O.5	4	5	5	5	5	5	4	5	4	3	4	5
L.O.6	4	4	5	5	5	5	5	5	4	3	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Volunteering Activities

Volunteering Activities

Course Details				
Code	T	A	C	ECTS
XXX	1	2	2	5
Course Name	Volunteering Activities			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The aim of the course is to strengthen the bond between universities and society by using the knowledge, skills and accumulation that students have acquired throughout their education life. To provide information that will be put into practice both theoretically and practically.			
Course Content	Management and Organization Concepts; The Concept of Volunteering and Volunteer Management; Basic Volunteering, Participation in Volunteer Work in Public Institutions and Local Governments and civil society; Risk Groups and Volunteering in Society; Immigrants and Volunteering.			
References	M. Lütfi Arslan, Gençlik ve Gönüllülük, Modern Çağda Gençliğin Anlam Arayışı, Bingöl Üniversitesi Uluslararası Sempozyumu, Bingöl Belediyesi Kültür Yayınları 2019, s. 249-263. Bedrettin Keskin, Ömer Miraç Yaman, Sivil Toplum ve Gençlik Politikaları Çerçevesinde Gençlik ve Gönüllülük, GSB. Semih Ofset, Fahri Çakı, “Gençlerin Uluslararası Gönüllü Hizmet Deneyimleri Ve Birey Üzerindeki Sosyo-Kültürel Etkileri” Akademik İncelemeler Dergisi Cilt:6 Number :1 2011, s.136-174			
Planned Learning Activities and Teaching Methods	Participating in voluntary activities of civil society organizations individually and collectively after acquiring theoretical knowledge.			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes

Upon completion of this course, the student will:	
1	To be able to increase their knowledge and experience in terms of establishing volunteering awareness.
2	To be able to increase their knowledge and experience in terms of systematically implementing volunteering awareness in our society.
3	To be able to understand that individuals gain the greatest gains despite not expecting any gain by getting to know volunteering activities.
4	To be able to provide a social environment for individuals through volunteering activities, to get rid of loneliness or boredom and to try to do something for the benefit of society.
5	To be able to strengthen the bond between universities and society by using the knowledge, skills and accumulation they have acquired throughout their education.
6	To be able to provide gains in terms of systematically implementing volunteering awareness in the minds of students and society.

Weekly Topics and Preparation	
Week	Topics
1. Week	Management, organization and volunteering concepts; Theoretical foundations of volunteering work, Volunteering management
2. Week	Examining volunteering work and its applications at home and abroad
3. Week	Basic volunteering areas (Disaster and emergency, migration and immigrants, environment, education and culture, sports, health and social services)
4. Week	Public institutions, local governments and civil society organizations where volunteering work can be carried out
5. Week	Ethics, moral, religious, traditional values and principles in volunteering work
6. Week	Preparing and developing project designs for volunteering work that can be done individually or with groups
7. Week	Starting volunteering work to implement developed projects
8. Week	Making interim/process evaluations for the implemented project regarding volunteering work
9. Week	Continuing volunteering projects
10. Week	Continuing volunteering projects
11. Week	Control of projects regarding volunteering work
12. Week	Control of projects regarding volunteering work
13. Week	Control of projects regarding volunteering work
14. Week	General evaluation, feedback, corrections regarding project results, Project delivery

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	1,00	1,00
Brainstorming	14	1,00	14,00
Midterm	1	1,00	1,00
Course Participation	14	3,00	42,00
Question and Answer	14	3,00	42,00
Self-study	14	3,00	42,00
Assignments	2	2,00	4,00
Reading	14	0,15	2,10
Midterm	1	1,00	1,00
Total			149,10
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	2	3	4	3	3	4	4	3	2	2	4
L.O.2	3	2	3	4	4	3	4	4	3	2	2	4
L.O.3	4	3	4	5	4	3	4	4	3	3	2	4
L.O.4	3	2	3	4	4	3	4	5	3	3	3	4
L.O.5	4	3	4	5	4	4	5	5	4	2	3	5
L.O.6	4	3	4	5	4	4	5	5	4	2	3	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Goal Programming

Goal Programming

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Goal Programming			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	In cases where more than one goal is desired to be achieved with the same activity or at different levels of importance, it is aimed to provide the ability to express the goals clearly, to combine them, to analyze and interpret them using modeling and goal programming techniques.			
Course Content	It includes the definition of concepts and components related to Goal Programming, the definition of Multi-Objective Decision Making Environments, the analysis of model structure and model building techniques.			
References	Practical Goal Programming, Dylan Jones, Mehrdad Tamiz, 2010, Springer			

	Yöneylem Araştırması, A Hamdy Taha, Literatür Yayıncılık, 2010 Yöneylem Araştırması, Ahmet Öztürk, Ekin Yayın Evi, 2004 Goal programming methodology and applications, MJ Sniederjans, Kluwer publishers, Boston. 1995
Planned Learning Activities and Teaching Methods	Theoretical Presentation Question and Answer Lecture
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the importance of Multi-Objective Decision Making activity.
2	To be able to know and apply which technique to use when faced with a complex economic/business/interest problem.
3	To be able to model and solve the goal programming problem.
4	To be able to model complex problems with advanced knowledge in Goal Programming and solve them with computer applications.
5	To be able to solve goal programming models with the help of computer programs.
6	To be able to use different mathematical structures in goal programming.
7	To be able to recognize and apply goal programming solution algorithms.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to Objective Programming, Definitions and Concepts
2. Week	Formulation of the Mathematical Model of Objective Programming Definition and Modeling of Objective Programming Types
3. Week	Single-Objective Models - Application Examples
4. Week	Graphic Solution
5. Week	Multi-Objective Models - Application Examples
6. Week	Weighted Models - Application Examples
7. Week	Weighted Models - Application Examples
8. Week	Excel / Programs Introduction and Application Solutions

9. Week	Winqsb Programs Introduction and Application Solutions
10. Week	Simplex Algorithm / Solution
11. Week	Analytical Hierarchy Method
12. Week	Analytical Hierarchy Method
13. Week	VIKOR Method
14. Week	Compromise Programming Method

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	5	5	5	5	4	2	4	5	5	5
L.O.4	4	5	5	5	5	5	4	2	4	5	5	5
L.O.5	5	4	5	5	5	5	4	2	5	5	5	5

L.O.6	4	4	3	4	4	4	4	4	4	4	4	4
L.O.7	5	5	5	4	5	4	5	4	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Decision Support Systems

Decision Support Systems

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Decision Support Systems			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The main purpose of the course is to recognize the components and tools used in decision making and information management; to understand the conveniences it provides to the decision maker and to have the knowledge level to be able to apply and design.			
Course Content	General terminology of Decision Support System, Information management, basic components of decision support systems, Types, why they are needed, History, Types, Importance of decision support systems in providing competitive advantage, system design, Information Based Decision Support Systems, Model Supported Decision Support Systems, Computer Supported Decision Support Systems, Application of decision support systems in different sectors, will be discussed within the scope of case studies.			
References	Decision Support Systems: A Knowledge –Based Approach, Clyde W. Holsapple, Andrew B. Winston Decision Support Systems: concepts and resources for managers, Power, D.J., Quorumbooks, 2002 Multiobjective Decisions Analysis with Engineering And Business Applications, Ambrose Goincoechea, Don R.Hansen, Lucien Duckstein, 1982 Decisions with multiple objectives preferences and value tradeoffs, Ralph L. Keeney, Howard Raiffa			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Group Work			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes
Upon completion of this course, the student will:

1	To be aware of the purposes, use and design of Decision Support Systems.
2	To be able to distinguish and define different Decision Support Systems.
3	To be able to recognize and use the tools used in Decision Support System design.
4	To be able to develop conceptual models in different sectors.
5	To be able to understand the role and importance of Decision Support System in providing competitive advantage.
6	To be able to define the difference between information management system and Decision Support System.
7	To be able to develop sustainable Decision Support System.

Weekly Topics and Preparation	
Week	Topics
1. Week	Decision Support Systems Design Tools
2. Week	Decision Support Systems Design Stages
3. Week	Knowledge Based Decision Support Systems
4. Week	Knowledge Management Techniques/Knowledge Management Tools Differences and Concepts
5. Week	Knowledge Management Techniques Used in Decision Support Systems
6. Week	Statistical Techniques and Decision Support Systems
7. Week	Multi-Criteria Decision Models and Decision Support Systems
8. Week	Model Based Decision Support System Design
9. Week	Simulation Systems Decision Support Systems
10. Week	Network Optimization and Decision Support Systems
11. Week	Sector Applications and Decision Support Systems
12. Week	Health Systems and Decision Support Systems
13. Week	Financial Systems and Decision Support Systems
14. Week	IT Sector and Decision Support Systems

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00

Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	4	5	4	4	5	5	5
L.O.2	4	3	5	4	4	5	4	5	4	5	5	3
L.O.3	5	5	4	5	5	4	5	5	5	4	5	5
L.O.4	4	3	5	4	4	5	4	5	5	4	4	3
L.O.5	5	5	4	5	5	5	5	5	5	5	4	5
L.O.6	4	3	5	4	4	5	4	5	5	5	5	3
L.O.7	4	5	5	5	5	5	5	5	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Categorical Data Analysis

Categorical Data Analysis

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Categorical Data Analysis			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The purpose of this course is to provide the student with knowledge of categorical data analysis.			
Course Content	Basic concepts in categorical data analysis, distributions and inference in categorical data, defining contingency tables, inference in two-way contingency tables, Generalized Linear Models, Logistic Regression, models for multinomial dependent variables, Poisson regression models for count output			
References	Akman, S. U. (2021). Kategorik Veri Analizi, Atlas Akademi. Bilder, J.R. & Loughin, T.M. (2015). Analysis of Categorical Data with R. London: CRC Press.			

	Agresti, A. (2013). Categorical Data Analysis, New Jersey: Wiley Interscience Publication Agresti, A. (2007). An introduction to categorical data analysis. New Jersey: Wiley Interscience Publication
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Sample Question Solution Applied Explanation
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the basic concepts of categorical data analysis.
2	To be able to exam the relationship between qualitative variables.
3	To be able to choose and use the appropriate model for various types of data.
4	To be able to make applications and interpret categorical data.
5	To be able to use computer software for categorical data analysis.
6	To be able to organize and transform categorical data.
7	To be able to visualize categorical data.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to categorical data analysis
2. Week	Distributions and inference in categorical data
3. Week	Defining contingency tables
4. Week	Inference in two-way contingency tables
5. Week	Introduction to Generalized Linear Models
6. Week	Introduction to Generalized Linear Models
7. Week	Application -1
8. Week	Logistic Regression

9. Week	Logistic Regression
10. Week	Models for multinomial dependent variables
11. Week	Models for multinomial dependent variables
12. Week	Poisson regression models for count output
13. Week	Poisson regression models for count output
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	3	3	3	2	1	1	2
L.O.2	5	5	2	4	5	4	3	4	3	1	3	3
L.O.3	4	5	2	5	5	4	3	4	3	1	3	5
L.O.4	5	5	2	5	5	4	2	4	3	2	3	3
L.O.5	5	5	2	5	5	4	2	4	5	2	5	3
L.O.6	5	4	3	5	5	4	2	4	4	2	4	3
L.O.7	5	5	4	5	3	5	2	4	4	2	4	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Mathematical Models

Mathematical Models

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Mathematical Models			
Course Language	Turkish			

Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	The purpose of using mathematical techniques is to define the problem, select a model according to the nature of the problem, apply it, analyze it, create a perception of being able to establish a mathematical model, and gain the ability to think abstractly.
Course Content	Introduction to Network Theory, Min Spanning Tree, Shortest Path Problems, Longest Path Problem, Max Flow Problems, Transportation Problems, Optimality Tests, Transfer Transportation, Assignment Problems, Minimum Cost Flow Problem, Network Simplex Method, Matching and Covering, Euler Graph, Mobile Salesman Problems, Vehicle Routing Problems
References	Yöneylem Araştırması, A. Hamdy TAHA, Literatür Yayıncılık, Ankara, 2001 Yöneylem Araştırması, Ahmet ÖZTÜRK, Ekin Yayınevi, İstanbul, 2012 Operations Research: Applications and Algorithms, Wayne L. Winston, Thomson Brooks/Cole, 2004 Yöneylem Araştırması Aydın Ulucan, Siyasal Kitabevi, 2001
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define mathematical model, optimization concepts.
2	To be able to make and manage strategic decisions.
3	To be able to use techniques that will help to solve the problems that can be encountered in the economy and to define decision environments.
4	To be able to explain the level of impact on the performance of institutions.
5	To be able to use the simplex algorithm of network models.
6	To be able to transform linear models into network optimization structure.
7	To be able to define mathematical model, optimization concepts.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to Network Theory, Basic Concepts, System Approach, Scientific Method Steps
2. Week	Linear Programming (Concepts, Definitions, Assumptions, Model Components, Sample Model Patterns)
3. Week	Solution Methods (Graphic Method)
4. Week	Solution Methods (Simplex Method)
5. Week	Simplex Algorithm/ Applications-Dual Simplex
6. Week	Simplex Algorithm/ Applications-two phase-Big M
7. Week	Integer Programming Introduction, Basic Concepts, Types, Model Components
8. Week	Mixed Integer Model Examples
9. Week	Branch and Bound Algorithm
10. Week	Network Optimization (Definitions Concepts-Min Spanning Tree)
11. Week	Shortest Path Problems/ Solution Algorithms (Floyd-Bellman-Dijkstra)
12. Week	Max Flow-Min Cost Flow Problems
13. Week	Transportation-Models
14. Week	Introduction to Network Theory, Basic Concepts, System Approach, Scientific Method Steps

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00

Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	4	5	5	5	4	2	4	5	5	5
L.O.4	4	5	5	4	5	5	4	2	4	5	5	5
L.O.5	5	4	5	5	5	5	4	2	5	5	5	5
L.O.6	4	4	3	5	4	4	4	4	4	4	4	4
L.O.7	5	5	5	5	5	4	5	4	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Spatial Econometrics

Spatial Econometrics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Spatial Econometrics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	It is aimed to estimate economic theories under spatial effects with spatial econometric methods, to test and interpret the results.			
Course Content	Spatial effects, Spatial Weight Matrix and Spatial Weighting, Spatial Autocorrelation and Moran-I test, Mapping, Linear Spatial Regression Models, Estimation Methods of Spatial Models, Computer Application.			
References	Zeren, Fatma (2009) Mekânsal Ekonometri, Der Yayınları. Anselin, Luc (1988) Spatial Econometrics Methods and Models, Springer. Anselin, Luc ve Rey, Sergio J. (2014) Modern Spatial Econometrics in Practice: A Guide to GeoDa, GeoDaSpace and PySAL, GeoDa Press LLC. Çubukçu, K. Mert (2015) Planlamada ve Coğrafyada Temel İstatistik ve Mekansal İstatistik, Nobel Akademik Yayıncılık.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Computer Aided Instruction			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			

Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able know the basic concepts used in the field of Spatial Econometrics.
2	To be able to use the Spatial Econometric research method.
3	To be able to recognize spatial data sets.
4	To be able to establish Spatial Econometric models.
5	To be able to know the basic assumptions of Spatial Econometric models.
6	To be able to estimate Spatial Econometric models.
7	To be able to interpret the estimates of Spatial Econometric models.
8	To be able to test the validity of economic theory using Spatial Econometric techniques.
9	To be able to evaluate the relationship between variables with spatial effects with maps and spatial statistics.
10	To be able to estimate spatial econometric models in a computer environment.

Weekly Topics and Preparation	
Week	Topics
1. Week	Classical Linear Regression Model
2. Week	Spatial effects
3. Week	Spatial Weight Matrix
4. Week	Spatial Weighting and Spatial Delay
5. Week	Spatial Autocorrelation
6. Week	Moran-I test
7. Week	Mapping
8. Week	Linear Spatial Regression Models
9. Week	Spatial Delay Model (SAR)
10. Week	Partial effects
11. Week	Spatial Error Model (SEM)
12. Week	Model selection
13. Week	Estimation Methods of Spatial Models
14. Week	Computer Implementation

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	14	1,00	14,00
Total			143,00
Total Workload / 30 (Hour)			4,77
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	4	4	4	4	4	4	4	3	4
L.O.2	5	4	5	5	5	5	5	5	5	4	4	4
L.O.3	4	4	5	5	4	5	4	5	5	5	4	4
L.O.4	4	4	4	5	4	5	4	5	5	4	4	5
L.O.5	5	5	4	4	4	4	4	4	4	5	3	4
L.O.6	5	4	4	5	5	5	5	5	5	4	4	4
L.O.7	5	5	4	5	5	5	5	5	5	5	4	5
L.O.8	5	4	4	5	5	5	5	5	5	5	4	5
L.O.9	4	4	5	5	5	5	5	5	5	4	4	4
L.O.10	4	4	4	5	5	5	5	5	5	4	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Microeconometrics

Microeconometrics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Microeconometrics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			

Prerequisites	None
Course Objective	To provide the ability to estimate a microeconomic model and interpret its results.
Course Content	Micro data sets, Structure of binary and multiple qualitative preference models, Linear Probability, Logit, Probit and Tobit Models.
References	Cameron, A. C., ve Trivedi, P. K. (2005). Microeconometrics: Methods and Applications. Cambridge University press Özer, H. (2004). Nitel Değişkenli Ekonometrik Modeller: Teori ve Bir Uygulama. Ankara: Nobel Yayın Dağıtım. Mert, Mehmet (2016). SPSS STATA Yatay Kesit Veri Analizi Bilgisayar Uygulamaları, Detay Yayıncılık. Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Green, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in microeconometrics.
2	To be able to use microeconomic research methods.
3	To be able to recognize and create micro data sets.
4	To be able to establish qualitative preference models.
5	To be able to know the basic assumptions of qualitative preference models.
6	To be able to estimate qualitative preference models.
7	To be able to interpret the estimates of qualitative preference models.
8	To be able to choose the appropriate qualitative preference model.
9	To be able to estimate qualitative preference models in a computer environment.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to Microeconometrics
2. Week	Micro data sets
3. Week	Heteroscedasticity
4. Week	Dummy Variable
5. Week	Structure of Qualitative Choice Models
6. Week	Linear Probability Model
7. Week	Logit Model
8. Week	Probit Model
9. Week	Tobit Model
10. Week	Application -1
11. Week	Multiple Choice Models
12. Week	Multiple Level Logit Model
13. Week	Ordered Logit Model
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	4	4	4	4	4	4	4	3	4
L.O.2	5	4	5	5	5	5	5	5	5	4	4	4
L.O.3	4	4	5	5	4	5	4	5	5	5	4	4
L.O.4	4	4	4	5	4	5	4	5	5	4	4	5
L.O.5	5	5	4	4	4	4	4	4	4	5	3	4
L.O.6	5	4	4	5	5	5	5	5	5	4	4	4
L.O.7	5	5	4	5	5	5	5	5	5	5	4	5
L.O.8	5	4	4	5	5	5	5	5	5	5	4	5
L.O.9	4	4	5	5	5	5	5	5	5	5	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Optimization

Optimization

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Optimization			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The use of Operations Research techniques aims to define the problem, select a model according to the nature of the problem, apply it, analyze it, and create a perception of being able to establish a mathematical model.			
Course Content	Linear Programming, Integer Programming, Transportation Models, Solution Methods, Algorithms (Simplex-Branch-Bound)			
References	Tam sayılı programlama, Teori Modeller, Algoritmalar, M. Akif BAKIR, Bülent Altunkaynak, 2003, Nobel Kitabevi Yardımcı Kaynaklar Yöneylem Araştırması, A. Hamdy TAHA, Literatür Yayıncılık, Ankara, 2001 Tam sayılı Programlama Algoritmaları ve Bilgisayar Uygulamalı Problem Çözümleri, Zehra Başkaya, Ekin Basım Yayın Operations Research: Applications and Algortihms, Wayne L. Winston, Thomson Brooks/Cole, 2004 Yöneylem Araştırması Aydın Ulucan, Siyasal Kitabevi, 2001			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Question and Answer Lecture			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				

Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define a given problem, determine its critical points and transform it into flow charts.
2	To be able to define decision environments.
3	To be able to explain the level of impact on the performance of institutions.
4	To be able to make decisions in production processes.
5	To be able to solve optimization.
6	To be able to recognize and use solution algorithms.
7	To be able to apply the processing steps of Branch and Bound, Cut algorithms.

Weekly Topics and Preparation	
Week	Topics
1. Week	Optimization and Basic Definitions
2. Week	Variable Concept and Using in Problems
3. Week	System Concept and Types,
4. Week	Optimization Concept and Its Place in Application
5. Week	Branch-Bound Pure Integer
6. Week	Branch-Bound Mixed Integer
7. Week	Cutting Methods
8. Week	Fractional Cutting Method
9. Week	Integer cutting method
10. Week	Mixed cutting method
11. Week	Integer table cutting method
12. Week	Logical 0-1 variables modeling examples
13. Week	Traveling Salesman Problems Optimal Algorithm
14. Week	Heuristic Methods

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	5	5	5	5	4	2	4	5	5	5
L.O.4	4	5	5	4	5	5	4	2	4	5	5	5
L.O.5	5	4	5	4	5	5	4	2	5	5	5	5
L.O.6	4	5	3	5	4	4	4	4	4	4	4	4
L.O.7	5	5	5	5	5	4	5	4	4	4	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Game Theory

Game Theory

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Game Theory			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	It is to provide the ability to model and analyze decisions related to econometric and economic situations with game theory.			
Course Content	Definition of decision environments related to Game Theory applications, Games Played with Full Information, Games Played Under Uncertainty,			

	Balanced games, Pure/Mixed Strategies, Superior Strategies Theory, Linear Programming Modeling/Graphical Solution Method, Games according to the number of people, The relationship between strategic decision situations encountered in the economy and game theory is emphasized.
References	Oyun Teorisi, Ensar Yılmaz, Literatür Yayıncılık, 2009 Stratejik Düşünme, / Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life Avinash K. DIXIT, Barry J. NALEBUFF, Sabancı Üniversitesi Yayınları, 2002 Strateji Sanatı / Life Avinash K. DIXIT, Barry J. NALEBUFF, İş Bankası Kültür Yayınları, 2015 Ortaklaşa Rekabet, Co-opetition Barry J. NALEBUFF, Adam M. BRADENBURGER, Scala Yayıncılık SUN TZU Savaş Sanatı, Çevirenler; Sibel ÖZBUDUN, Zeynep Ataman Anahtar Kitaplar Yayınevi, 2013
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Book Reading
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define decision environments.
2	To be able to offer solution suggestions that can be developed with the game theory approach to the encountered problems.
3	To be able to define theories and concepts related to game theory.
4	To be able to recognize different decision environments and make decisions with game theory methods.
5	To be able to make decisions that create competitive advantage in complex decision environments and unpredictable situations.
6	To be able to develop decision models under risk.
7	To be able to define decision models under uncertainty.

Weekly Topics and Preparation	
Week	Topics

1. Week	Game Theory, Scope, Concepts, Components
2. Week	Decision Situations (State of Certainty, State of Risk, State of Uncertainty)
3. Week	Analysis of Competitive Game Situations (Market Share Determination, Bargaining, Auction)
4. Week	Pure Strategy Games/Two Person Zero-Sum Games
5. Week	Equilibrium Point and Determining Determined Games/Production Plan
6. Week	Mixed Strategy Games/Superior Strategies and Undermining/Organizational Strategy Determination
7. Week	Unstable Games
8. Week	Unstable Games
9. Week	Analysis of Cooperative Game Situations Financial Planning/Accounting Planning
10. Week	Two Person Constant-Sum Games
11. Week	Two Person Non-Constant-Sum Games
12. Week	N Person Games
13. Week	Solution and Modeling of Games with Graphs
14. Week	Solution and Modeling of Games with Linear Programming

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2	2
Final Exam	1	2	2
Course Participation	14	3	42
Problem Solving	6	2	12
Self-study	6	2	12
Application/practical	10	2	20
Assignments (Self-study)	7	2	14
Assignments	1	10	10
Midterm (Self-study)	1	12	12
Final Exam (Self-study)	1	15	15
Total			141,00

Total Workload / 30 (Hour)	4,70
ECTS	5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	5	5	4	4	5	5	5
L.O.2	4	3	5	4	4	5	4	5	5	4	5	3
L.O.3	5	5	4	5	5	5	5	5	5	5	4	5
L.O.4	4	3	5	4	4	4	4	5	5	5	4	3
L.O.5	5	5	4	5	5	5	5	5	5	5	5	5
L.O.6	4	3	5	4	4	5	4	5	5	5	5	3
L.O.7	4	5	5	5	5	5	5	5	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Sampling

Sampling

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Sampling			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The aim of this course is to teach students how to design a sample using sampling methods and how to use these methods in a theoretical and practical way by addressing the subject of sampling.			
Course Content	Basic concepts and principles related to sampling, Distinction between complete count and sampling; Distinction between parameters and statistics, Introduction to sampling methods, Simple random sampling, Sampling distribution of sample means, Standard deviation and standard error, Stratified sampling, Systematic sampling, Cluster sampling, non-probability sampling methods and their areas of use, Quota sampling, Purpose sampling, Acceptance sampling, Two-stage sampling methods			
References	Özer Serper, Mustafa Aytaç, Nuran Bayram (2013). Örneklem. Ezgi Kitabevi Yayınları Hülya Çingı (2009). Örneklem Kuramı. Bizim Büro Basımevi Yayın Dağ. Tic. Ltd. Şti. Besim Akın (2004). Örneklem Yöntemleri ve Genel Uygulamalar. İstanbul Ofset Basım Yayın San.ve Tic. A.Ş. Taro Yamane (2009). Temel Örneklem Yöntemleri. Literatür Yayıncılık.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion			
Other Recommended	Will be announced at the beginning of the semester.			

Issues for the Course	
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic principles and concepts related to sampling.
2	To be able to learn probability-based sampling methods.
3	To be able to learn non-probability-based sampling methods.
4	To be able to use different sampling methods.
5	To be able to draw a sample.
6	To be able to calculate sample size.
7	To be able to design a sample appropriately.

Weekly Topics and Preparation	
Week	Topics
1. Week	Basic concepts and principles related to sampling
2. Week	Distinction between complete count and sampling; distinction between parameters and statistics
3. Week	Introduction to sampling methods
4. Week	Simple random sampling
5. Week	Sampling distribution of sample means, Standard deviation and standard error
6. Week	Sampling distribution of sample means, Standard deviation and standard error
7. Week	Stratified and Systematic sampling
8. Week	Cluster sampling
9. Week	Non-probability sampling methods and their areas of use
10. Week	Quota sampling
11. Week	Purpose sampling
12. Week	Acceptance sampling
13. Week	Two-stage sampling methods
14. Week	General repetition and applications

Assessment Methods (%)		
1	Application/practical	40

2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	5,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	3	3	2	3	3	2	3	3
L.O.2	5	4	3	4	3	3	2	3	3	2	3	3
L.O.3	5	4	3	4	3	3	2	3	3	2	3	3
L.O.4	5	5	4	5	4	4	3	4	4	2	4	4
L.O.5	5	5	4	5	4	4	3	4	4	2	4	4
L.O.6	4	5	4	5	4	4	3	4	4	3	4	4
L.O.7	4	5	4	5	4	4	3	4	4	3	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Nonparametric Statistics

Nonparametric Statistics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Nonparametric Statistics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Learning nonparametric statistical techniques and applying these methods to real data sets.			
Course Content	Nonparametric statistical tests: Chi-square tests, Kolmogorov-Smirnov tests, Wilcoxon tests, Mann-Whitney U test, Kruskal Wallis one-way analysis of variance via ranks, Sperman and Kendall rank correlation coefficients.			
References	Gamgam, Hamza ve Altunkaynak, Bülent (2013). SPSS Uygulamalı Parametrik Olmayan İstatistiksel Teknikler. Seçkin Yayıncılık.			

	Doğan, İsmet ve Doğan, Nurhan (2014). Adım adım çözümlü parametrik olmayan istatistiksel yöntemler. Detay Yayıncılık. Kalaycı, Şerek (2016) SPSS Uygulamalı Çok Değişkenli İstatistik Teknikleri. Asil Yayınevi. Sprent, Peter ve Smeeton, Nigel C. (2007). Applied Nonparametric Statistical Methods. Chapman and Hall/CRC
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To know the basic concepts of Nonparametric Statistics.
2	To learn the basic features of nonparametric statistical methods.
3	To analyze nonparametric variables.
4	To learn nonparametric statistical methods for single samples.
5	To learn nonparametric statistical methods for multiple samples.
6	To apply nonparametric statistical techniques to real data sets.
7	To use computer software to apply Nonparametric Statistics methods.

Weekly Topics and Preparation	
Week	Topics
1. Week	Assumptions of Nonparametric Statistics
2. Week	Sign Test, Wilcoxon Signed Rank Test
3. Week	Goodness of Fit Tests
4. Week	Independent Two Sample Tests
5. Week	Mann-Whitney U, Kolmogorov-Smirnov, Wald-Wolfowitz
6. Week	Independent K Sample Tests
7. Week	Kruskal-Wallis One-Way ANOVA

8. Week	Application -1
9. Week	Jonckheere-Terpstra
10. Week	Median Test
11. Week	Dependent Two Sample Test: McNemar's Test
12. Week	Dependent K Sample Tests: Cochran's Q
13. Week	Sperman and Kendall Rank Correlation Coefficient and tests
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	2	3	2	3	4	2	4	3
L.O.2	5	5	3	4	3	3	3	3	4	2	4	4
L.O.3	5	5	4	4	4	4	3	4	4	2	4	4
L.O.4	5	5	3	4	3	3	2	3	4	2	4	3
L.O.5	5	5	3	4	3	3	3	4	4	2	4	4
L.O.6	4	5	4	5	4	4	3	4	5	3	5	4
L.O.7	4	5	4	5	4	4	3	4	5	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Project Management

Project Management

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Project Management			

Course Language	Turkish
Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	It is the processing of project management techniques in order to provide management skills and decision-making competence in time and cost issues.
Course Content	It covers conceptual and technical processes for project planning and preparation, which play a key role in entrepreneurship, public, university, private sector funding processes.
References	Operations Research: Applications and Algorithms, Wayne L. Winston, Thomson Brooks/Cole, 2004 Proje Yönetimi, Prof Dr.İsmet Barutçugil, Kariyer Yayınları, 2008 Yöneylem Araştırması, Ahmet ÖZTÜRK, Ekin Yayınevi, İstanbul, 2012 Yöneylem Araştırması Aydın Ulucan, Siyasal Kitabevi, 2001
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Brainstorming Group Work
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to apply methods that facilitate decision making.
2	To be able to gain Project Writing Techniques.
3	To be able to use computerized solutions and planning.
4	To be able to use Budget Planning methods.
5	To be able to recognize and use Time and Cost analysis methods.
6	To be able to understand Project Management.
7	To be able to use Application Project Management Techniques.

Weekly Topics and Preparation

Week	Topics
1. Week	Project Concept, Basic Concepts related to its Components
2. Week	Project Types
3. Week	Project Resources
4. Week	Project Proposal Editing
5. Week	Project Budget Editing
6. Week	Project Time Management
7. Week	Project Cost Management
8. Week	Applied Project Management Techniques
9. Week	Applied Project Management Techniques
10. Week	Application Project Writing Techniques
11. Week	Application Project Writing Techniques
12. Week	Project Presentations
13. Week	Sample Projects
14. Week	Project Concept, Basic Concepts related to its Components

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70

ECTS	5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	5	5	5	5	5	5	5
L.O.2	4	3	5	4	4	5	4	5	5	5	5	3
L.O.3	5	5	4	5	5	5	5	5	5	5	5	5
L.O.4	4	3	5	4	4	4	4	4	4	4	4	3
L.O.5	5	5	4	5	5	4	5	4	4	4	4	5
L.O.6	4	3	5	4	4	5	4	5	5	5	5	3
L.O.7	4	5	5	5	5	5	5	5	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Field Work

Field Work				
Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Field Work			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to provide students with independent research and writing skills.			
Course Content	Determining a scientific field of study, collecting data appropriate to the research question, performing data analysis appropriate to the field, reporting and presenting findings.			
References	Newbold Paul (2008), İşletme ve İktisat için İstatistik, Literatür Karasar, Niyazi (2005). Bilimsel Araştırma Yöntemi 14. Baskı, Nobel Yayın Dağıtım. Özer Serper, Mustafa Aytaç, Nuran Bayram (2013). Örnekleme. Ezgi Kitabevi Yayınları Çevik O., Akgül A., (2003), “İstatistiksel Analiz Teknikleri – SPSS’te İşletme Yönetimi Uygulamaları”, Emek Ofset Ltd.Şti			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion Sample Application Presentation			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				

Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to determine a scientific field of study.
2	To be able to prepare a survey form appropriate to the research question.
3	To be able to draw a sample practically.
4	To be able to collect data appropriate to the research question.
5	To be able to perform data analysis appropriate to the field.
6	To be able to report the findings.
7	To be able to present the findings.

Weekly Topics and Preparation	
Week	Topics
1. Week	Quantitative research methods
2. Week	Sampling
3. Week	Data collection methods
4. Week	Questionnaire preparation techniques
5. Week	Questionnaire preparation techniques
6. Week	Pilot Field Work Application
7. Week	Pilot Field Work Application
8. Week	Field Work
9. Week	Field Work
10. Week	Reporting
11. Week	Reporting
12. Week	Presentation
13. Week	Presentation
14. Week	Presentation

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation

Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	14	2,00	28,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	3	4	3	4	3	3	2	2	2	3
L.O.2	3	4	3	4	4	3	3	4	3	2	4	4
L.O.3	3	4	3	5	4	4	3	4	3	2	4	4
L.O.4	3	4	3	5	4	4	3	4	3	2	4	4
L.O.5	4	5	3	5	4	4	3	4	4	2	5	4
L.O.6	3	4	4	4	4	4	4	5	4	3	4	5
L.O.7	3	3	5	4	3	4	4	5	3	3	3	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Chess

Chess

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Chess			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Teaching and developing chess opening, endgame, combination techniques.			
Course Content	To provide strategic thinking skills to future manager candidates by ensuring that the rules and basics of the chess game, which we can think of as a projection or simulation of life, can be learned and motivation and concentration concepts can be based on practice.			
References	Türkiye Satranç Federasyonu-Başlangıç Düzey Satranç Ders Kitabı Satrançta Strateji ve Açılış Teorisi Ansiklopedisi- H. Sertaç Dalkıran Santranç Ders Kitabı Mustafa Alper YILDIZ Her Yönüyle Satranç Peter Kurzdorfer			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Group Work
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to think strategic.
2	To be able to use a software program to solve problems.
3	To be able to evaluate basic solutions to problems.
4	To be able to use techniques that will help to understand the nature of the problems that may be encountered and to reach a solution.
5	To be able to distinguish between tactical and strategic decisions in application skills for long-term decisions.
6	To be able to acquire and use coordination, planning, and quick-thinking skills.
7	To be able to develop attention and concentration skills.

Weekly Topics and Preparation	
Week	Topics
1. Week	Course Description, Course Content Information, General Definitions
2. Week	Problem Definition
3. Week	Thinking Theories
4. Week	Defining chess components
5. Week	Chess federation definitions-rules
6. Week	Opening techniques
7. Week	Opening Techniques
8. Week	Variants
9. Week	Variants
10. Week	Strategy Development

11. Week	Combinezones
12. Week	Endgame Strategies
13. Week	Winning tactics in chess
14. Week	Chess philosophy

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	5	5	5	5	4	2	4	5	5	5
L.O.4	4	4	4	4	5	5	4	2	4	4	4	4
L.O.5	5	4	4	4	5	5	4	3	5	4	5	5
L.O.6	4	4	4	4	4	4	4	3	4	5	5	5
L.O.7	4	5	5	5	4	4	4	2	4	5	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Internship

Internship

Course Details				
Code	Code	Code	Code	Code
XXX	0	0	0	5

Course Name	Internship
Course Language	Turkish
Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	The aim of this course is to provide students with the opportunity to apply the theoretical knowledge they have acquired during their undergraduate education in a real business environment and gain professional experience. It is aimed that students will get to know the business world closely through internships in various fields such as public institutions, private sector organizations, non-governmental organizations, research centers, develop their skills to adapt to the professional business environment, observe the practices related to the field of economics on site, gain experiences that will contribute to career planning and reinforce their academic knowledge with practical applications. In addition, it is aimed that students develop professional skills such as business ethics, professional responsibility, teamwork, communication, problem solving and gain the necessary experience and references for their future careers.
Course Content	Getting to know the institution where the internship will be held and examining its organizational structure, internship application and acceptance processes, professional behavior and ethical rules in the business world, corporate communication and workplace protocols, getting to know the departments and business processes in the institution where the internship is held, learning and fulfilling the duties and responsibilities given during the internship, economic analysis and data interpretation applications, observing decision-making processes in businesses, examining public policies and corporate strategies, applying financial analysis and reporting techniques, human resources and organizational behavior observations, use of information technologies in business processes, reporting and presentation of the internship process, evaluation of the internship experience in terms of career planning.
References	Çetin, C. (2018). <i>İnsan kaynakları yönetimi</i> (5. Baskı). Beta Yayınları. Brealey, R. A., Myers, S. C., & Marcus, A. J. (2017). <i>İşletme finansının temelleri</i> (6. Baskı). (Ü. Bozkurt, Çev.). Nobel Akademik Yayıncılık. Kotler, P., & Armstrong, G. (2018). <i>Pazarlama ilkeleri</i> (17. Baskı). (A. Ercan, Çev.). Beta Yayınları. Ardıç, K., & Yüksel, Ö. (2018). <i>İş etikleri ve iş ahlakı uygulamaları</i> (4. Baskı). Detay Yayıncılık. Aldemir, C., Ataoğlu, A., & Budak, G. (2018). <i>İnsan kaynakları yönetimi</i> (9. Baskı). Barış Yayınları.
Planned Learning Activities and Teaching Methods	On-the-job practical training, orientation programs, learning under the guidance of a mentor/advisor, assuming tasks and responsibilities, department rotations, making observations, job and process analyses, problem-solving practices, case studies, pre- and post-internship seminars, preparing internship reports, making internship presentations, keeping a reflective diary, internship experience evaluation meetings, regular meetings with the internship advisor.
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.

Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to apply theoretical knowledge in economics in a real business environment
2	To be able to define the organizational structure, departments and basic business processes of businesses or institutions
3	To be able to act in accordance with professional rules of conduct, business ethics and corporate identity in the business world
4	To be able to adapt to internal communication, teamwork and group dynamics
5	To be able to use the skills of analyzing and interpreting economic data in the business environment
6	To be able to identify problems that arise in business processes and develop solution suggestions
7	To be able to follow and evaluate economic developments in the sector in which the institution operates
8	To be able to fulfill the duties and responsibilities undertaken during the internship process professionally
9	To be able to systematically report and present internship experiences
10	To be able to evaluate internship experiences in line with career goals and make future plans

Weekly Topics and Preparation	
Week	Topics
1. Week	Internship Orientation and Introduction to the Institution
2. Week	Institutional Structure and Organization Chart Review
3. Week	Business Ethics, Workplace Rules and Professional Behavior
4. Week	Department Duties and Responsibilities
5. Week	Applications of Economic Data Collection and Analysis Methods
6. Week	Financial Analysis and Reporting Techniques
7. Week	Review of Institutional Decision-Making Processes
8. Week	Sectoral Analysis and Market Research
9. Week	Evaluation of Public Policies or Institutional Strategies
10. Week	Human Resources and Organizational Behavior
11. Week	Use of Information Technologies in Business Processes
12. Week	Development of Professional Competencies

13. Week	Internship Report Preparation Techniques
14. Week	Evaluation of Internship Experience and Career Planning

Assessment Methods (%)		
1	Internship Performance (Workplace Evaluation)	40
2	Internship Report	35
3	Internship Presentation/Interview	20
4	Internship Advisor Evaluation	5

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Internship Application	20	6,00	120,00
Orientation	1	5,00	5,00
Preparing Internship Report	1	15,00	15,00
Preparing Internship Presentation	1	5,00	5,00
Meeting with Internship Advisor	3	1,00	3,00
Internship Evaluation	1	2,00	2,00
Total			150
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	4	4	4	4	4	4	4	3	4
L.O.2	5	4	5	5	5	5	5	5	5	4	4	4
L.O.3	4	4	5	5	4	5	4	5	5	5	4	4
L.O.4	4	4	4	5	4	5	4	5	5	4	4	5
L.O.5	5	5	4	4	4	4	4	4	4	5	3	4
L.O.6	5	4	4	5	5	5	5	5	5	4	4	4
L.O.7	5	5	4	5	5	5	5	5	5	5	4	5
L.O.8	5	4	4	5	5	5	5	5	5	5	4	5
L.O.9	4	4	5	5	5	5	5	5	5	5	5	4
L.O.10	5	5	4	4	4	4	4	4	4	5	3	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Stock Control Models

Stock Control Models

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Stock Control Models			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	It is to define and solve Stock Management and Modeling as the most basic problem and source encountered in businesses.			
Course Content	It covers the definition of concepts related to Stock Management, Stock Control Methods and analysis of stock decisions that can be encountered in different conditions in businesses, Stock Models and solution techniques.			
References	Schaums Outline İşlemler Yönetimi Gazi Kitabevi, 2012 Yöneylem Araştırması, Ahmet ÖZTÜRK, Ekin Yayınevi, İstanbul, 2012 Stok Yönetimi, Stok Kontrolü, Etkin Stok Yönetimi ve Tam Zamanında Üretim, Orhan Küçük, Seçkin Yayınları, 2014 Yöneylem Araştırması, Hayrettin Kemal Sezen, Ekin Yayınevi, 2004			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Question and Answer Assignment Lecture Brainstorming			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the impact and importance of the stock function on businesses.
2	To be able to recognize and manage stock costs.
3	To be able to adapt stock problems to different situations and environments.

4	To be able to formulate, solve and interpret stock problems with mathematical modeling.
5	To be able to understand stock management models.
6	To be able to establish a relationship between stock management and sustainability.
7	To be able to harmonize stock management and supply chain functions.

Weekly Topics and Preparation	
Week	Topics
1. Week	Stock Concept, Stock Costs, Definitions and Concepts,
2. Week	Economic Order Quantity Model Formulation
3. Week	Production Model (Fixed Rate Order)
4. Week	Sell-Out Model
5. Week	Constraint Situations in Order Planning of a Large Number of Stock Elements
6. Week	Effect of Price Discounts on Economic Order Quantity
7. Week	Effect of Inflation on Economic Order Quantity
8. Week	Dynamic Models (Stock Control)
9. Week	Intuitive Models (Stock Control)
10. Week	Stock Control with Linear Planning
11. Week	Dynamic Programming
12. Week	Multi-Objective Decision Making / Goal Programming
13. Week	Introduction of Excel Programs and Application Solutions
14. Week	Introduction of Winqsb Programs and Application Solutions

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00

Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	5	5	5	5	5	5	5
L.O.2	4	3	5	4	4	5	4	5	5	5	5	3
L.O.3	5	5	4	5	5	5	5	5	5	5	5	5
L.O.4	4	3	5	4	4	5	4	5	5	5	5	3
L.O.5	5	5	4	5	5	4	5	5	5	4	4	5
L.O.6	4	3	5	4	4	4	4	4	4	4	4	3
L.O.7	4	5	5	5	5	5	5	5	5	5	5	5
L.O.8	5	5	4	5	5	5	5	5	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Estimation Theory

Estimation Theory

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Estimation Theory			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	To point out the importance of parameter estimation in terms of statistical theory, to examine the properties of the obtained estimate, to show which methods are used to obtain it and to point out the problems in this framework.			
Course Content	Point Estimation, Properties of Estimates, Moment Method, Maximum Likelihood Estimation, Sufficient Statistics, Rao-Blackwell Theorem, Hypothesis Testing Problem, Neyman-Pearson Result, Likelihood Ratio Test, Unbiasedness and Invariance Tests, Chi-Square Tests, T and F Tests, Bayesian and Minimax Approaches, Confidence Interval Approach, Hypothesis Testing and Confidence Interval Relationship, Bayesian Confidence Interval constitute the content of the course.			
References	Yamane, T., ve Esin, A. (2010). Temel örnekleme yöntemleri. Literatür Yayıncılık. Orhunbilge, N. (2000). Örnekleme yöntemleri ve hipotez testleri. Avcıol Basım Yayın. SERPER, Ö., AYTAÇ, M., ve BAYRAM, N. (2016). Örnekleme, 4. b. Bursa: Ezgi Yayınları.			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand statistical analysis.
2	To be able to adapt to statistical analysis management systems.
3	To be able to create the theoretical infrastructure of the regression method.
4	To be able to create the theoretical infrastructure of the variance analysis method.
5	To be able to solve different regression and variance analysis problems.
6	To be able to perform maximum likelihood method estimation.
7	To be able to perform chi-square test, t test and F test tests.

Weekly Topics and Preparation	
Week	Topics
1. Week	Point estimation
2. Week	Characteristics of estimates
3. Week	Moment method
4. Week	Maximum likelihood estimation
5. Week	Adequate statistics
6. Week	Hypothesis testing problem
7. Week	Application -1
8. Week	Neyman-Pearson result
9. Week	Likelihood ratio test
10. Week	Unbiasedness and invariance tests
11. Week	Chi-square tests, t and F tests
12. Week	Bayesian and minimax approaches

13. Week	Confidence Interval Approach, Hypothesis Testing and Confidence Interval Relationship
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	7	2,00	14,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	13,00	13,00
Midterm (Self-study)	1	13,00	13,00
Final Exam (Self-study)	1	15,00	15,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	3	2	4	3	3	2	3	3
L.O.2	2	4	4	3	3	2	5	3	3	2	5	5
L.O.3	4	3	3	5	4	3	3	4	4	4	4	2
L.O.4	3	5	2	4	2	3	3	5	2	5	2	3
L.O.5	4	4	4	5	4	3	3	4	4	2	4	3
L.O.6	3	2	2	4	3	2	2	3	3	2	3	4
L.O.7	4	3	3	5	4	3	3	4	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Supply Chain and Logistics Management

Supply Chain and Logistics Management

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Supply Chain and Logistics Management			

Course Language	Turkish
Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	Supply Chain Management, Integration with Business Strategies, Importance, Logistics Management, Logistics Functions, performance measurement, network design, information management and supply chain, MRP, MRP, KIP, ERP, JIT, lean, agile, hybrid, reverse closed loop supply chain management approaches will be discussed.
Course Content	It aims to provide information and analysis skills regarding Supply Chain Management, the relationships of the business with its suppliers, network structure, partnerships, relationships with 3PL-4PL companies, customer relations and distribution network strategies, demand, stock management.
References	Douglas Long (2012) (Çeviri: Mehmet Tanyaş, Murat Düzgün) Uluslararası Lojistik Küresel Tedarik Zinciri Yönetimi, Nobel Yayınevi Erdal Nebol, Tanyeri Uslu, Ezgi Uzel, Tedarik Zinciri ve Lojistik Yönetimi, Beta Yayınevi Lojistik ilkeleri ve Yönetimi (2011), Doç.Dr. Orhan Küçük, Seçkin Yayınevi Simchi-Levi, David, Philip Kaminsky, and Edith Simchi-Levi (2000), Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies, New York: McGraw-Hill Higher Education. Chopra, Sunil and Peter Meindl (2004). Supply Chain Management: Strategy, Planning, and Operations, Second edition, NJ: Pearson Prentice Hall.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Assignment Brainstorming Question and Answer
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define Problems in the Field.
2	To be able to recognize and design the logistics functions of businesses.
3	To be able to define decision environments related to Supply Chain Processes.
4	To be able to explain the level of impact on the performance of the business.
5	To be able to analyze decision environments.

6	To be able to design the logistics functions and the business's supply chain in harmony.
7	To be able to plan strategic decisions on Supply Chain sustainability and logistics management.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction, Supply Chain Concept, Development
2. Week	Logistics Principles, Management, Concepts
3. Week	Value Management
4. Week	Sourcing and Trading
5. Week	Supply Chain Functions
6. Week	Purchasing Relationships
7. Week	Distribution Channel Relationships
8. Week	Warehouse Management Relationships
9. Week	Performance Measurement and Supply Chain
10. Week	Supply Chain Management Productivity Relationship
11. Week	Supply Chain Network Design
12. Week	Supply Chain Management Strategic Perspective
13. Week	Information Management and Supply Chain
14. Week	Integrated Supply Chain Management (Closed Loop Supply Chain, Reverse Supply Chain)

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00

Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	4	4	4	5	4	3	4	5	4	4
L.O.4	4	4	5	5	5	4	4	3	4	4	5	5
L.O.5	5	4	5	5	5	5	4	2	5	5	5	5
L.O.6	4	5	5	5	5	5	4	2	4	5	5	5
L.O.7	4	5	5	5	5	5	4	2	4	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Applied Statistics

Applied Statistics

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Applied Statistics			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The aim of this course is to present the applications of the learned statistical methods on real data sets to the student with the help of R and SPSS programs.			
Course Content	Introduction to SPSS Package program and data entry, Descriptive statistics, Hypothesis tests, Single factor variance analysis, Chi-square analysis, Factor analysis, Principal components analysis, Introduction to R program: Matrices, vectors, indexes, lists, data frames, etc., Functions and conditions in R, Basic statistics and descriptive data analysis in R, Graphs, Data analysis applications in R.			
References	Özer Serper (2014) Uygulamalı İstatistik. Ezgi Kitabevi Çevik O., Akgül A., (2003), “İstatistiksel Analiz Teknikleri – SPSS’te İşletme Yönetimi Uygulamaları”, Emek Ofset Ltd.Şti Pallant, J., Çeviren: Ahi, B., Balcı, S. (2016). SPSS Kullanma Kılavuzu-SPSS İle Adım Adım Veri Analizi. Anı Yayınları. Gürsakar, N. (2014). İstatistikte R ile Programlama. Pusula Yayıncılık			

Planned Learning Activities and Teaching Methods	Lecture Question and Answer Sample Question Solution Discussion Applied Explanation Computer Aided Instruction
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to enter data in SPSS and analyze real data sets.
2	To be able to introduce data in R and prepare it for analysis.
3	To be able to create graphics in R.
4	To be able to learn the basic principles of statistical programming.
5	To be able to calculate confidence intervals, t and z tests, chi-square tests in a computer environment using real data sets.
6	To be able to choose methods to examine social problems statistically.
7	To be able to produce analytical solutions to determined problems and to make predictions about the subject.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to computer programs and information
2. Week	Introduction to SPSS Package program and data entry
3. Week	Descriptive statistics
4. Week	Hypothesis testing
5. Week	Single factor analysis of variance
6. Week	Chi-square analysis
7. Week	Factor analysis
8. Week	Factor analysis
9. Week	Principal components analysis

10. Week	Introduction to R program: Matrices, vectors, arrays, lists, data frames, etc.
11. Week	Functions and conditions in R
12. Week	Basic statistics and descriptive data analysis in R
13. Week	Graphs
14. Week	Data analysis applications in R

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	1	4,00	4,00
Final Exam (Self-study)	1	4,00	4,00
Midterm	1	1,00	1,00
Problem Solving	14	3,00	42,00
Assignments (Self-study)	14	1,00	14,00
Self-study	14	3,00	42,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	4	3	5	3	4	3	4	4	1	5	4
L.O.2	3	4	3	5	3	4	3	4	5	1	4	3
L.O.3	4	5	3	4	4	3	2	5	5	1	4	3
L.O.4	5	5	2	4	4	3	2	5	4	2	5	3
L.O.5	5	5	4	5	4	4	3	4	5	2	5	4
L.O.6	4	5	4	5	3	4	3	4	5	2	5	5
L.O.7	3	5	4	5	3	3	3	5	5	1	5	2

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Applied Panel Data Analysis

Applied Panel Data Analysis

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Applied Panel Data Analysis			

Course Language	Turkish
Course Level	Undergraduate
Course Type	Elective
Prerequisites	None
Course Objective	Understanding and creating panel data sets with computer examples, understanding modeling of unobservable effects, recognizing and estimating Fixed Effects and Random Effects models, choosing appropriate ones.
Course Content	One-Way and Two-Way Fixed Effects Models, Least Squares Dummy Variable Method, Fixed Effects and Random Effects Panel Data Models, Within-Group Estimator, Extended Least Squares Estimator, Hausman Test, Apparently Unrelated Models
References	Ferda Yerdelen Tatoğlu (2012) Panel Veri Ekonometrisi Stata Uygulamalı, BETA. Ferda Yerdelen Tatoğlu (2012) İleri Panel Veri Analizi Stata Uygulamalı, BETA. H. Baltagi (2008) Econometric Analysis of Panel Data, John Wiley & Sons. Jeffrey. M. Wooldridge (2001) Econometric Analysis of Cross Section and Panel Data, The MIT Press.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question-Answer Computer Aided Instruction Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to recognize and create panel data sets.
2	To be able to model unobservable effects.
3	To be able to analyze one-way and two-way effects.
4	To be able to recognize and estimate fixed and random effects models.
5	To be able to use the Panel Data Analysis research method.
6	To be able to choose the appropriate panel data model.
7	To be able to estimate panel data models in a computer environment.

Weekly Topics and Preparation	
Week	Topics
1. Week	Panel data econometrics
2. Week	Panel data sets
3. Week	Unobserved effects
4. Week	Pooled Least Squares Method
5. Week	One-, Two- and Two-Way Fixed Effects Models
6. Week	Application -1
7. Week	Application -2
8. Week	Fixed Effects and Random Effects Panel Data Models
9. Week	First Difference Method
10. Week	Dummy Variable Least Squares Estimation Method
11. Week	Within-Group Estimation Method
12. Week	Model Selection and Diagnostic Tests with Hausman Test
13. Week	Application -3
14. Week	Application -4

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	7	1,00	7,00
Self-study	14	2,00	28,00
Assignments	2	4,00	8,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	14	1,00	14,00
Total			151,00
Total Workload / 30 (Hour)			5,03

ECTS	5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	4	4	3	3	2	3	4	4	4	3
L.O.2	4	4	5	5	4	3	3	3	3	3	3	2
L.O.3	4	4	5	5	4	3	3	3	3	3	3	2
L.O.4	5	5	5	5	4	3	3	3	4	4	4	3
L.O.5	5	5	5	5	5	4	4	4	4	4	4	4
L.O.6	4	4	4	5	5	4	3	4	4	4	4	4
L.O.7	5	5	5	5	4	4	4	4	5	4	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Applied Time Series Analysis

Applied Time Series Analysis

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Applied Univariate Time Series Analysis			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Developing the theoretical knowledge acquired in Univariate Time Series Analysis and Multivariate Time Series Analysis courses into practice using econometric software.			
Course Content	Information on how to examine and interpret economic relations based on Time Series within the scope of econometric models. In this context, presentation of the basic theoretical and usage features of mathematical and statistical methods.			
References	Mustafa Sevüktekin ve Mehmet Nargeleşekenler (2010) Ekonometrik Zaman Serileri Analizi EViews Uygulamalı, Nobel Yayın Dağıtım. Yılmaz Akdi (2010) Zaman Serileri Analizi (Birim Kökler ve Kointegrasyon), Gazi Kitabevi. Walter Enders (2004) Applied Econometric Time Series, John Wiley & Sons. Zaman Serilerinin Analizi ve ARIMA Modelleri, Işıl Akgül, Der Yayınları, 2003			
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Sample Question Solution Discussion Applied Explanation Computer Aided Instruction			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			

Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to have analyzing the properties of time series
2	To be able to have modelling ARMA and ARIMA
3	To be able to have making predictions
4	To be able to have modelling VAR
5	To be able to have commenting on the Behavior of Economic and Financial Series
6	To be able to have understanding the components of time series
7	To be able to have modelling the behavior of economic and financial data

Weekly Topics and Preparation	
Week	Topics
1. Week	Time series components
2. Week	AR Models
3. Week	MA Models
4. Week	ARMA Models
5. Week	ARIMA Models
6. Week	Unit root tests
7. Week	Application
8. Week	VAR Model
9. Week	Co-integration
10. Week	VECM Model
11. Week	ARDL Model
12. Week	Granger Causality
13. Week	Application
14. Week	Application

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	1	4,00	4,00
Final Exam (Self-study)	1	4,00	4,00
Midterm	1	1,00	1,00
Problem Solving	14	3,00	42,00
Assignments	14	1,00	14,00
Self-study	14	3,00	42,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	4	3	4	3	2	4	3	5	2	5	4
L.O.2	3	5	3	4	3	2	4	3	5	2	5	5
L.O.3	5	4	4	5	4	3	3	4	5	1	5	4
L.O.4	4	5	4	5	3	3	3	4	4	1	4	3
L.O.5	4	5	5	5	4	3	3	4	5	2	4	4
L.O.6	5	5	5	5	4	3	3	4	5	2	5	4
L.O.7	3	4	3	4	3	2	4	3	5	2	5	3

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Production Management

Production Management

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Production Management			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Production management is a discipline related to the design and management of products, processes, services and supply chain components. Its goal is to deliver the products and services that businesses and their customers need at the time, quality and price they want, and simultaneously to ensure their own earnings, development, resource efficiency and productivity.			
Course Content	Production Process Analysis, Demand Forecasts, Production Process Decision Making Techniques, Business Analysis, Production Planning and Control, Capacity Planning, Inventory Management, Facility Layout, Supply			

	Chain Network Structure, Design, Organization Location Selection, Quality Control, Total Quality Management, Lean Manufacturing, 6 Sigma
References	Üretim İşlemleri/ Yönetimi Stratejik Kararlar ve Karar Modelleri, Prof. Dr. Sevinç Üreten, Gazi Kitabevi Üretim Yönetimi, Prof. Dr. Bülent Kobu, Avcıol Basım Yayın. Üretim Planlaması, Doç. Dr. Feray Odman Çelikçapa, Alfa Yayınları. Üretim Yönetimi: Süreçler ve Tedarik Zincirleri, Krajewski, L.J., Malhotra M.K. Çev ed: Semra Birgün, 9. Basım Nobel Ekonomik, Ankara 2013
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to analyze business processes.
2	To be able to recognize the concepts of stock, bottleneck, machine, material, labor scheduling, workflow, capacity planning, total quality, kanban, lean production and 6 sigma.
3	To be able to develop models related to supply chain network structure, design and flows between processes.
4	To be able to establish stock control models.
5	To be able to follow the literature on general concepts and strategies related to the production process.
6	To be able to understand the compatibility with supply chain functions.
7	To be able to define the conceptual process related to sustainability.

Weekly Topics and Preparation	
Week	Topics
1. Week	Production Process Analysis
2. Week	Demand Forecasts
3. Week	Production Process Decision Making Techniques
4. Week	Business Analysis
5. Week	Production Planning and Control

6. Week	Capacity Planning
7. Week	Stock Management
8. Week	Facility Layout
9. Week	Supply Chain Network Structure, Design
10. Week	Organization Location Selection
11. Week	Quality Control
12. Week	Total Quality Management
13. Week	Lean Manufacturing
14. Week	6 Sigma

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	54	5	4	4	4	4	5
L.O.2	4	3	5	4	4	4	4	5	5	5	4	3

L.O.3	5	5	4	5	5	5	5	5	5	5	5	5
L.O.4	4	3	5	4	4	5	4	5	5	5	5	3
L.O.5	5	5	4	5	5	5	5	5	5	5	5	5
L.O.6	4	3	5	4	4	5	4	5	5	5	5	3
L.O.7	4	5	5	5	5	5	5	5	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Analysis of Variance and Design of Experiments

Analysis of Variance and Design of Experiments

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Analysis of Variance and Design of Experiments			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The purpose of this course is to provide the student with knowledge of variance analysis and experimental design.			
Course Content	Use of Statistical Techniques in Experimental Studies, Simple Comparative Experiments, Single Factor Experiments: Analysis of Variance, Multifactor Experiments, Randomized Block Designs, Latin Square Designs, Factorial Designs, Two and Three Level Factorial Designs			
References	Erbaş, S. O. vd. (2018). Araştırmacılar için SPSS Uygulamalı İstatistiksel Deney Tasarımı, Gazi Kitabevi Şenoğlu, B. Ve Acıtaş, Ş. (2020). İstatistiksel Deney Tasarımı -Sabit Etkili Modeller, Nobel Akademik Yayıncılık Hicks, C. R. (2009). Deney Düzenlemede İstatistiksel Yöntemler, Çev. Zehra Muluk, Öñiz Toktamış, Ergun Karaağaoğlu, Serdar Kurt, Gazi Kitabevi			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Sample Question Solution Applied Explanation			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes
Upon completion of this course, the student will:

1	To be able to design and analyze statistical experiments.
2	To be able to use basic concepts related to variance analysis.
3	To be able to test the necessary assumptions for the variance analysis model.
4	To be able to analyze variance for fixed, random and mixed effect models.
5	To be able to use computer software for statistical experimental design.
6	To be able to choose the type of experiment.
7	To be able to describe the data collection methods for the experiment.

Weekly Topics and Preparation	
Week	Topics
1. Week	Use of Statistical Techniques in Experimental Studies
2. Week	Simple Comparative Experiments
3. Week	Single Factor Experiments: Analysis of Variance
4. Week	Single Factor Experiments: Analysis of Variance
5. Week	Multi-Factor Experiments
6. Week	Randomized Block Designs
7. Week	Latin Square Designs
8. Week	Application -1
9. Week	Factorial Designs
10. Week	Two-Level Factorial Designs
11. Week	Blocking and Mixtures in Two-Level Factorial Designs
12. Week	Two-Level Fractional Factorial Designs
13. Week	Three-Level Factorial Designs
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00

Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	4	3	4	4	2	2	3	3	1	3	5
L.O.2	5	4	3	3	4	3	3	3	4	2	4	3
L.O.3	5	5	2	5	5	3	3	2	3	1	3	4
L.O.4	4	5	2	4	3	3	3	3	3	1	3	4
L.O.5	4	5	3	4	4	2	2	3	5	1	5	3
L.O.6	4	4	3	4	4	2	2	3	3	1	3	5
L.O.7	3	5	4	5	5	4	4	4	3	1	3	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Data Science

Data Science

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Data Science			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to teach, apply and interpret Data Science techniques and methods.			
Course Content	Basic concepts of data science, application development stages in data science, data set creation and loading of ready data sets, review and preparation processes on the data set, adding and removing attributes, data filtering, completing missing data, obtaining basic statistical information, outlier detection, data visualization, machine learning algorithms			
References	Doç. Dr. Deniz KILINÇ, Nezahat BAŞEĞMEZ, "Uygulamalarla Veri Bilimi", Abaküs, 2018. A. Neagoie, D. Bourke, Complete Machine Learning & Data Science Bootcamp 2021.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Sample Application Presentation			

Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the basic concepts of data science.
2	To be able to use basic statistical knowledge for data science.
3	To be able to apply the stages of extracting useful information from data.
4	To be able to use data science and modeling tools.
5	To be able to use basic algorithm knowledge for data science.
6	To be able to perform empirical applications based on real data.
7	To be able to use computer software to use data science techniques and methods.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to data science
2. Week	Application development stages in data science
3. Week	A look at the tools used in data science
4. Week	Creating a data set and loading ready data sets
5. Week	Analysis and preparation processes on the data set
6. Week	Adding and removing attributes
7. Week	Filtering data, completing missing data
8. Week	Obtaining basic statistical information
9. Week	Outlier detection
10. Week	Data visualization
11. Week	Data visualization
12. Week	Machine learning algorithms
13. Week	Machine learning algorithms
14. Week	Application

Assessment Methods (%)

1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	3	3	3	4	2	4	3
L.O.2	5	5	4	5	4	3	3	3	4	2	4	3
L.O.3	5	5	4	5	5	4	3	4	4	2	4	3
L.O.4	4	4	3	4	4	3	3	3	4	2	5	4
L.O.5	4	4	3	4	4	3	3	3	4	2	5	4
L.O.6	5	5	4	5	5	4	4	4	4	3	5	4
L.O.7	5	4	3	4	4	3	3	3	5	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Data Visualization

Data Visualization

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Data Visualization			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to teach students the basic areas of data visualization: data collection, data cleaning, data analysis and data visualization.			

Course Content	Definition and purpose of Data Visualization, data visualization principles, data visualization rules, data visualization tools, data preprocessing, chart types, scatter plots, color selection, choosing the appropriate visualization tool for the data, creating data tables, mapping, ethics in data visualization applications
References	Bozkurt, A. (2024). Python: Veri Analizi, Görselleştirme ve Yapay Zekâ, Hiper Yayın. Fry, B. (2008). Visualizing data: Exploring and explaining data with the processing environment. O'Reilly Media, Inc Tufte, E. (1983). The Visual Display of Quantitative Information, Graphics Press.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the history and effects of data visualization.
2	To be able to understand current applications of data visualization.
3	To be able to understand the basics of data and data visualization.
4	To be able to use basic algorithms and techniques in data visualization.
5	To be able to apply data visualization techniques.
6	To be able to apply basic data visualization tools.
7	To be able to select appropriate software and graphic types to model and visualize data.
8	To be able to use computer software for data visualization.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition and purpose of Data Visualization
2. Week	Principles of data visualization

3. Week	Rules of data visualization
4. Week	Data visualization tools
5. Week	Data preprocessing
6. Week	Chart types
7. Week	Scatter plots
8. Week	Color selection
9. Week	Choosing the appropriate visualization tool for the data
10. Week	Creating data tables
11. Week	Mapping
12. Week	Ethics in data visualization applications
13. Week	Application -1
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	2	3	3	2	2	2	3	2	2	2	2

L.O.2	4	3	4	4	4	3	3	4	3	2	3	3
L.O.3	5	4	4	4	4	3	3	4	3	2	4	4
L.O.4	5	4	4	4	4	3	3	4	4	2	5	4
L.O.5	5	4	4	5	4	3	3	4	4	2	5	4
L.O.6	5	4	4	4	4	3	3	4	4	2	5	4
L.O.7	5	4	4	5	4	3	3	4	5	3	5	4
L.O.8	5	4	3	4	4	3	3	3	5	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Machine Learning

Artificial Intelligence

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Artificial Intelligence			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to provide students with information on basic techniques and methods in artificial intelligence and to provide basic skills.			
Course Content	History and philosophy of artificial intelligence, basic concepts, Problem solving with artificial intelligence, Search algorithms, Game problems, Natural language processing, Computer pattern recognition, Artificial neural networks, Genetic algorithms, Fuzzy logic, Robotics, Human computer interaction			
References	Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, Third Ed., Prentice Hall, 2010, Michael Negnevitsky, Artificial Intelligence: A Guide to Intelligent Systems (3rd Edition) Vasif Nabiyev, Yapay Zekâ: İnsan ve Bilgisayar Etkileşimi 4. Baskı			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Sample Application Presentation			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes
Upon completion of this course, the student will:

1	To be able to understand the basic concepts of Artificial Intelligence.
2	To be able to distinguish between a traditional system and an intelligent system.
3	To be able to know the types of Artificial Intelligence.
4	To be able to recognize problems that can be solved with Artificial Intelligence methods.
5	To be able to choose the appropriate Artificial Intelligence method for the given problem.
6	To be able to solve the given problem with the appropriate Artificial Intelligence method.
7	To be able to apply Artificial Intelligence to problems in social sciences.

Weekly Topics and Preparation	
Week	Topics
1. Week	History and philosophy of AI
2. Week	Basic concepts in AI
3. Week	Problem solving with AI
4. Week	Search algorithms
5. Week	Search algorithms
6. Week	Search algorithms
7. Week	Game problems
8. Week	Natural language processing
9. Week	Computer pattern recognition
10. Week	Artificial neural networks
11. Week	Genetic algorithms
12. Week	Fuzzy logic
13. Week	Robotics
14. Week	Human computer interaction

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00

Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	3	3	3	4	2	4	3
L.O.2	4	4	3	4	4	3	3	3	4	2	4	3
L.O.3	5	4	3	4	4	3	3	3	4	2	4	3
L.O.4	4	4	3	5	4	4	4	4	3	2	5	4
L.O.5	4	5	3	5	5	4	4	4	4	2	5	4
L.O.6	4	5	4	5	4	4	4	4	4	3	5	4
L.O.7	4	4	5	5	5	4	4	4	4	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Supply Chain Management and Blockchain Applications

Supply Chain Management and Blockchain Applications

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Supply Chain Management and Blockchain Applications			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Blockchain technology provides a data source that can be read by all parties, while providing inherent security and traceability. It aims to identify processes that will minimize common supply chain problems such as late updates, miscommunication or incorrect identity verification, to define Supply Chain Management, Integration with Business Strategies, Integration with Digital Technologies and Its Importance, to be able to associate Supply and Production Chain with Mobile Applications, Internet of Things, Social Media Applications. It aims to discuss and analyze with Sector Application Examples.			
Course Content	Course includes definitions and basic concepts related to Blockchain Supply Chain Functions, the ability to verify the authenticity of products, track products from source to destination and ensure compliance with controls such as storage temperature and humidity, 20 different rule definitions for Blockchain adoption in sectoral applications, Blockchain technology infrastructure requirements and sectoral application examples.			

References	Nick Vyas, Aljosja Beije, Bhaskar Krishnamachari, (2019) Blockchain and the Supply Chain: Concepts, Strategies and Practical , Kogan Page Publishers Kshetri Nir (2021)Blockchain and Supply Chain Management, Elsevier, https://doi.org/10.1016/C2020-0-02868- Simchi-Levi, David, Philip Kaminsky, and Edith Simchi-Levi (2000), Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies, New York: McGraw-Hill Higher Education. Chopra, Sunil and Peter Meindl (2004). Supply Chain Management: Strategy,Planning, and Operations, Second edition, NJ: Pearson Prentice Hall.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Homework Brainstorming Question-Answer
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems in the field
2	To be able to recognize supply chain functions of businesses and design processes to adapt to blockchain structure.
3	To be able to define decision environments related to supply chain processes and blockchain structure
4	To be able to explain the level of impact on the performance of the business
5	To be able to define blockchain technology components
6	To be able to design the business's supply chain in harmony with blockchain functions
7	To be able to plan strategic decisions on supply chain sustainability and blockchain adaptation

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction, Supply Chain Concept, Blockchain Infrastructure and Development
2. Week	Why Should Supply Chain Be Aligned with Blockchain Architecture?
3. Week	Blockchain Infrastructures

4. Week	Sourcing and Trade
5. Week	Integration of Supply Chain Functions and DOI (Diffusion and Innovation) Technology
6. Week	Harmonization Processes and Digital Technology Infrastructures
7. Week	Blockchain Distribution Channel Relationships and Industry Application Maersk Example
8. Week	Blockchain Warehouse Management Relationships
9. Week	Blockchain Performance Measurement and Supply Chain
10. Week	Supply Chain Management Productivity Relationship
11. Week	Supply Chain Network Design with blockchain Technology
12. Week	Supply Chain Management Strategic Perspective
13. Week	Digitalization and SupplyChain Management
14. Week	Integrated Supply Chain Management (Closed Loop Supply Chain, Reverse Supply Chain)

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm Exam	1	2,00	2,00
Final Exam	1	2,00	2,00
Class Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Individual Study	6	2,00	12,00
Application/Practice	10	2,00	20,00
Self Study for Homework Problems	7	2,00	14,00
Homework	1	10,00	10,00
Self Study for Midterm Exam	1	12,00	12,00
Self Study for Final Exam	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	3	3	3	4	2	4	3
L.O.2	4	4	3	4	4	3	3	3	4	2	4	3
L.O.3	5	4	3	4	4	3	3	3	4	2	4	3
L.O.4	4	4	3	5	4	4	4	4	3	2	5	4
L.O.5	4	5	3	5	5	4	4	4	4	2	5	4
L.O.6	4	5	4	5	4	4	4	4	4	3	5	4
L.O.7	4	4	5	5	5	4	4	4	4	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Growth Theories

Growth Theories

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Growth Theories			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Teaching Economic Growth Concept and Theory and Practice; learning of Economic Growth Crises			
Course Content	Economic Growth Concept and Theory and Practice; learning of Economic Growth Crises			
References	Kitaplar: 1. E.Yeldan (2009) İktisadi Büyüme ve Bölüşüm Teorileri, Eflatun Yayınevi 2. C. Jones (2001) İktisadi Büyümeye Giriş, Literatür Yayıncılık, 2001 3. Y. Akyüz (2009) Sermaye Bölüşüm ve Büyüme, Efil yayınevi 2009 4. E. Ünsal (2007) İktisadi Büyüme, İmaj Yayıncılık, Ankara. 5. OECD (2005) Ekonomik Büyümeyi Anlamak, TUSİAD, Nisan 2005. 6. R.J. Barro and X. Sala-i Martin (1995), Economic Growth, McGraw-Hill Inc., 7. A. Maddison,(2001) The World Economy: A Millennial Perspective. Paris, OECD, Development Centre Studies. 8. World Bank (2008) The Growth Report, Strategies for Sustained Growth and Inclusive Development, Washington DC 9. World Bank (2005) Economic Growth in the 1990s, Learning From Decade of Reform, Washington DC 10. Ş. Saygılı ve Cihan, C. (2008) Türkiye Ekonomisinin Büyüme Dinamikleri, Küresel Ekonomiye Entegrasyon Sürecinde Büyüme Dizisi, TUSİAD–TCMB ORTAK yayını, Haziran. 11. D. Rodrik (2009) Tek Ekonomi Çok Reçete, Küreselleşme Kurumlar ve Ekonomik Büyüme, Eflatun Yayınevi, Ankara. 12. G. N. Mankiw (2003) Macroeconomics, Worth Publishers, part 3, . 13. Ş. Pamuk (2008) Osmanlıdan Cumhuriyete Küreselleşme İktisat Politikaları ve Büyüme, Seçme Eserler II, T. İş Bankası Kültür Yayınları. 14) D.Acemoğlu (2009), Introduction to Modern Economic Growth, Princeton University Press, 2009. 15) R. J.Barro ve X. Sala-i Martin (1995), Economic Growth, McGraw-Hill,1995 16) R. Brenner (2007) Ekonomide Hızlı Büyüme ve Balon, Dünya Ekonomisinde ABD’nin Yeri, İletişim Yayınları. 17) İ. Şiriner ve Y. Doğru (2006) Türkiye’de Büyümenin Ekonomi Politikası, 1980 Sonrası Türkiye Ekonomisi Üzerine Bir İnceleme, Dipnot Yayınları, Ankara. 18) Freeman, C. ve L. Soete (2003) Yenilik İktisadi, (Çev. E. Turkcan), TUBITAK, Ankara Kaynaklar (ek- seçilmiş): İFMC İktisat Dergisi, İktisat ve			

	Toplum Dergisi, İktisat İşletme ve Finans Dergisi, Ekonomik Araştırma Forumu (EAF) ve gazetelerin ekonomi sayfaları ve ayrıca aşağıdaki kurum ve kuruluşların web siteleri: www.tcmb.gov.tr www.tek.org.tr www.tusiad.com.tr www.dpt.gov.tr www.eaf.ku.edu.tr www.tepav.org.tr www.hazine.gov.tr www.tuik.gov.tr www.bagimsizsosyalbilimciler.org http://unido.org http://worldbank.org http://unctad.org www.nber.org www.oecd.org www.imf.org www.economist.com
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand economic growth
2	To able to calculate economic growth
3	To able to understand Keynesian theories of growth
4	To be able to understand the working process of Solow growth model.
5	To be able to evaluate the growth problems of developing countries.
6	To able to compare theories of growth
7	To able to analyze the growth differences between countries.

Weekly Topics and Preparation	
Week	Topics
1. Week	Economic Growth Concept, Economic Growth Trends in World and Turkey. Classical Growth Theory and Marxist Growth Theory
2. Week	Neoclassical Growth, The Solow-Swan Growth Model
3. Week	Keynesian Growth, the Cambridge version Harrod-Domar model
4. Week	Adjustment Processes: Solow vs. Harrod
5. Week	Neoclassical Growth: Empirical Implications Paradoxes of Growth The Convergence Hypotheses
6. Week	Multisector Growth The Uzawa Two-Sector Growth Model

7. Week	Optimal Growth The Ramsey Exercise Golden Rule Growth Intertemporal Social Welfare
8. Week	Endogen Growth Theories
9. Week	Romer Model and New Approach
10. Week	Romer Model and New Approach
11. Week	Public Sector and major Problems of Growth in New Growth Models
12. Week	Finance and Growth; Trade and Growth and their problems
13. Week	Crises Process, Theory of Volatility in Economic Growth
14. Week	Crises Process and Growth strategies

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00
Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	3	2	3	2	2	3	3	2	2	2	3
L.O.2	4	4	3	4	4	4	4	4	3	2	2	4
L.O.3	5	4	3	4	4	4	4	4	3	2	2	4
L.O.4	5	3	2	3	3	3	3	3	2	2	2	3
L.O.5	5	4	3	4	4	4	4	4	3	2	2	4

L.O.6	5	4	3	4	4	4	4	4	3	2	2	4
L.O.7	5	3	4	5	5	5	5	5	4	3	3	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Money and Banking

Money and Banking

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	Money and Banking			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	To teach students the theoretical background used in monetary evaluation and analysis by examining the Classical, Keynesian and Monetarist economic approaches, theories related to money supply, money demand and interest, and monetary institutions.			
Course Content	Definition of money, its functions and emergence of money, Definitions of monetary aggregates and money supply, Money supply increase processes (registered money and money multiplier), Analysis of the TCMB Balance Sheet, Money demand theory (Classical, Keynesian), Money Demand, Theory, (Modern Quantity Theory and Portfolio Theories), Money Supply Theory, Money and Interest Relationship, Balance of payments, foreign exchange and money relationship, Exchange rate regimes, International financial parity conditions			
References	M. Paya, Para Teorisi ve Politikası, Filiz Yayınevi, 2005 N Keyder, Para Teori-Politika- Uygulama,2008 İ. Parasız, Modern Para Teorisi Ezgi Kitabevi, 1998 H. Seyitoğlu, Uluslararası Finans, Güzem Yayınları,2002			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to recognize Money and Monetary Institutions.
2	To be able to understand theories of money demand.

3	To be able to understand the relationship between Central Banking and Banking System.
4	To be able to understand the international monetary system.
5	To be able to understand alternative macroeconomic approaches related to money.
6	To be able to understand Monetary Policies.
7	To be able to use the scientific knowledge that will be acquired about money in social and business life.

Weekly Topics and Preparation	
Week	Topics
1. Week	Developments in Monetary and Financial Markets Today,
2. Week	Definition of money, its functions and emergence of money
3. Week	Definitions of monetary aggregates and money supply
4. Week	Money supply increase processes (bank money and money multiplier)
5. Week	Analysis of TCMB Balance Sheet
6. Week	Money demand theory (Classical, Keynesian)
7. Week	Money demand theory (Classical, Keynesian)
8. Week	Money Demand Theory, (Modern Quantity Theory and Portfolio Theories)
9. Week	Money Supply Theory
10. Week	Money and Interest rate relationship
11. Week	Balance of payments, foreign exchange and money relationship
12. Week	Exchange rate regimes
13. Week	International financial parity conditions 1
14. Week	International financial parity conditions 2

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00
Discussion	14	2,00	28,00

Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	3	2	3	2	2	3	3	2	2	2	3
L.O.2	4	4	3	4	4	4	4	4	3	2	2	4
L.O.3	5	4	3	4	4	4	4	4	3	2	2	4
L.O.4	5	3	2	3	3	3	3	3	2	2	2	3
L.O.5	5	4	3	4	4	4	4	4	3	2	2	4
L.O.6	5	4	3	4	4	4	4	4	3	2	2	4
L.O.7	5	3	4	5	5	5	5	5	4	3	3	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

International Economics Theory

International Economics Theory

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	International Economics Theory			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The purpose of this course is to introduce basic theories of international trade and the effects of international economic policies on domestic and world welfare			
Course Content	- Ricardian Model - Heckscher-Ohlin Model - Increasing Returns And Monopolistic Competition - International Trade And Growth - International Trade Policy			
References	Krugman and Obstfeld. 2002. International Economics: Theory and Policy, 6th Ed. Addison Wesley. Dominick Salvatore (2009), International Economics, 10th edition, Wiley Publ.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			

Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the sources of gains from trade
2	To be able to understand the effects of trade on growth
3	To be able to analyze current international trade problems
4	To be able to understand foreign trade theories
5	To be able to create trade policies
6	To be able to understand the importance of trade policies and the effects of interventionist policies.
7	To be able to understand the effects of interventionist policies on trade policies.

Weekly Topics and Preparation	
Week	Topics
1. Week	Theory of Comparative Advantage
2. Week	Theory of Comparative Advantage
3. Week	Standard Theory of International Trade
4. Week	Standard Theory of International Trade
5. Week	Demand and Supply, Offer Curves, Terms of Trade
6. Week	Demand and Supply, Offer Curves, Terms of Trade
7. Week	Factor Endowments
8. Week	Hecksher-Ohlin Theory
9. Week	Factor Endowments and Hecksher-Ohlin Theory
10. Week	Economies of Scale, Imperfect Competition and Trade
11. Week	Economic Growth and International Trade
12. Week	Economic Growth and International Trade
13. Week	Economic Growth and International Trade
14. Week	Trade Policy

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50

3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Assignments	2	2,00	4,00
Midterm	1	2,00	2,00
Discussion	14	2,00	28,00
Reading	4	4,00	16,00
Problem Solving	14	2,00	28,00
Question and Answer	14	2,00	28,00
Total			150,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	3	2	3	2	2	3	3	2	2	2	3
L.O.2	4	4	3	4	4	4	4	4	3	2	2	4
L.O.3	5	4	3	4	4	4	4	4	3	2	2	4
L.O.4	5	3	2	3	3	3	3	3	2	2	2	3
L.O.5	5	4	3	4	4	4	4	4	3	2	2	4
L.O.6	5	4	3	4	4	4	4	4	3	2	2	4
L.O.7	5	3	4	5	5	5	5	5	4	3	3	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

General Accounting

General Accounting

Course Details				
Code	T	A	C	ECTS
XXX	3	0	3	5
Course Name	General Accounting			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	To show students general accounting transactions within the framework of Generally Accepted Accounting Principles and to help them understand the			

	preparation of financial statements such as Balance Sheet and Income Statement that show the financial performance of the business.
Course Content	It consists of the operation of accounts up to the stock group within the framework of Generally Accepted Accounting Principles. In this context, the following plan is implemented.
References	SEVİLENGÜL, Orhan, Genel Muhasebe, 2009,15.Baskı, Gazi Kitabevi. SEVİLENGÜL, Orhan, Çözümlü Genel Muhasebe Problemleri, Mart 2010, 7. Baskı, Gazi Kitabevi. BAYAZITLI, Ercan, Genel Muhasebe Problemleri, 2009, Siyasal Kitabevi. TANIŞ, Veyis NACİ, Genel Muhasebe İlkeler ve Uygulamalar, 2010, 3. Baskı, Karahan Kitabevi. SÜRMEN, Yusuf. Muhasebe - 1, 2010, Celepler Matbaacılık.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the basic concepts in the field of general accounting.
2	To be able to perform accounting transactions in businesses.
3	To be able to apply the theoretical knowledge learned in the field of accounting in business life.
4	To be able to follow current accounting issues.
5	To be able to solve accounting problems encountered in businesses.
6	To be able to examine the relationship between accounting and other units and disciplines of the business by gaining analytical thinking skills.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition and Fundamentals of Accounting- Sections of Accounting.
2. Week	Basic Concepts of Accounting and Generally Accepted Accounting Principles.

3. Week	Definition of Balance Sheet and Effect of Financial Transactions on Balance Sheet.
4. Week	Definition of Income Statement and Effect of Financial Transactions on Income Statement.
5. Week	Definition of Account and Rules of Operation of Accounts.
6. Week	Types of Accounts- Accounting System.
7. Week	Understanding of Financial Accounting Process.
8. Week	Application related to Financial Accounting Process.
9. Week	Classification of Accounts- Asset Accounts – 1 Current Asset Accounts -10 Liquid Values Group (Cash, Checks Received, Bank).
10. Week	Checks Issued and Other Liquid Values Accounts.
11. Week	Securities Group – Operation of Shares Account.
12. Week	Operation of Bond Accounts, Trade Receivables Group- Operation of Buyers, Notes Receivable and Doubtful Trade Receivables Accounts.
13. Week	KDV Accounts Operation, Stock Accounts - General operation of Commercial Goods and Domestic Sales Accounts.
14. Week	Definition and Fundamentals of Accounting - Sections of Accounting.

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	7	2,00	14,00
Application/practical	8	2,00	16,00
Assignments (Self-study)	7	1,00	7,00
Assignments	7	1,00	7,00
Midterm (Self-study)	2	7,00	14,00
Final Exam (Self-study)	3	6,00	18,00
Total			123,00
Total Workload / 30 (Hour)			4,10
ECTS			4

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	3	5	5	5	5	2	2	4	3	4	3
L.O.2	3	3	5	5	5	5	2	2	4	2	4	2
L.O.3	2	4	4	5	5	5	3	3	4	5	3	3
L.O.4	4	4	4	4	4	4	3	2	5	5	5	3
L.O.5	3	3	5	5	5	5	2	2	2	4	2	5
L.O.6	3	3	5	5	5	5	2	2	2	4	2	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Faculty Non-Area Elective Courses

Econometrics I

Econometrics I

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Econometrics I			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	To provide the ability to approach economics analytically, to estimate an econometric model and to interpret its results.			
Course Content	Definition of Econometrics, single and multivariate linear regression models, Least Squares estimation method and assumptions, Maximum Likelihood Estimation method, estimation and forecasting, interval estimates and hypothesis testing			
References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Yardımcı Kaynaklar Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Green, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			

Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in the field of econometrics.
2	To be able to use an econometric research method.
3	To be able to know the basic assumptions of the classical econometric model.
4	To be able to understand the Least Squares estimation method.
5	To be able to make estimations and predictions.
6	To be able to test the validity of economic theory using econometric techniques.
7	To be able to interpret the results of an econometric model.
8	To be able to use a classical econometric model in applied studies.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition of Econometrics
2. Week	Univariate linear regression model
3. Week	Least Squares (LS) Estimation Method
4. Week	Assumptions of the LS method
5. Week	Characteristics of LS estimators
6. Week	Econometric Problems
7. Week	Maximum Likelihood Method
8. Week	Multivariate linear regression model
9. Week	Matrix approach to linear regression model
10. Week	Estimation of multivariate linear regression model
11. Week	Estimation and forecasting
12. Week	Interval estimation
13. Week	Hypothesis testing
14. Week	Application

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	5,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	5	4	4	4	4	5	3	2	3	4
L.O.2	5	5	4	5	5	4	5	5	4	3	4	5
L.O.3	5	4	5	4	4	4	4	5	3	2	3	4
L.O.4	4	4	5	5	5	4	5	5	3	2	3	4
L.O.5	4	5	4	5	5	5	5	5	3	2	3	4
L.O.6	4	5	5	5	5	5	5	5	3	2	3	4
L.O.7	4	5	5	5	5	5	5	5	3	2	3	4
L.O.8	4	5	5	5	5	5	5	5	3	2	3	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Econometrics II

Econometrics II

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Econometrics II			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	To gain theoretical knowledge about the problems that may arise after the estimation of an econometric model, to gain the ability to use qualitative variables as explanatory variables in a linear regression model, to understand the effects of measurement errors in both dependent and explanatory variables on the linear regression model.			
Course Content	Econometric problems, Multicollinearity, Heteroscedasticity, Autocorrelation, Dummy variable, Use of dummy variable as explanatory variable, measurement and measurement errors.			

References	Gujarati, Damodar N. ve Porter, Dawn C. (2014) Temel Ekonometri, Literatür Yayınları, Çevirenler Ümit Şenesen ve Gülay Günlük Şenesen. Koutsoyiannis, Anna (1987) Ekonometri Kuramı- Ekonometri Yöntemlerin Tanıtımına Giriş, Verso Yayıncılık, Çeviren Ümit Şenesen ve Gülay Günlük Şenesen. Wooldridge, Jeffrey Marc (2013), Ekonometriye Giriş- Modern Yaklaşım Cilt 1-2, Nobel Akademik Yayıncılık, Çeviri Editörü Ebru Çağlayan. Greene, William H. (2016) Ekonometri Çözümleme, Palme Yayıncılık, Çeviren Ümit Şenesen.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to know the basic concepts used in the field of econometrics.
2	To be able to know the basic assumptions of the classical econometric model.
3	To be able to understand econometric problems.
4	To be able to research and solve econometric problems.
5	To be able to solve econometric problems.
6	To be able to use dummy variables as explanatory variables.
7	To be able to interpret the coefficients of the regression model on measurement units.
8	To be able to understand measurement errors.

Weekly Topics and Preparation	
Week	Topics
1. Week	Econometric issues
2. Week	Multiple collinearity
3. Week	Heteroscedasticity
4. Week	Heteroscedasticity Tests

5. Week	Autocorrelation
6. Week	Autocorrelation Tests
7. Week	The problem of omitted variables
8. Week	Qualitative Variable
9. Week	Qualitative explanatory variable
10. Week	Dummy variable trap
11. Week	Qualitative dependent variable
12. Week	Scaling and measurement units
13. Week	Measurement errors in dependent variable
14. Week	Measurement errors in explanatory variable

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Problem Solving	7	2,00	14,00
Self-study	14	3,00	42,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	7	4,00	28,00
Total			149,00
Total Workload / 30 (Hour)			4,97
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	5	4	5	5	4	4	4	3	2	3	4
L.O.2	5	5	5	5	5	4	5	5	3	2	3	4
L.O.3	5	5	5	5	5	4	5	5	3	2	3	4
L.O.4	5	5	5	5	5	4	5	5	3	2	3	4
L.O.5	5	5	5	5	5	4	5	5	2	2	3	3

L.O.6	4	4	5	4	4	5	4	4	3	2	3	4
L.O.7	4	5	5	5	5	4	5	5	3	2	2	4
L.O.8	4	4	5	5	5	4	5	5	3	2	2	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Open-Source Programming

Open-Source Programming

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Open-Source Programming			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Learning the algorithmic way of thinking by understanding the principles and stages required for solving any problem, being able to code the solutions developed for the problems with the algorithmic way of thinking one has on an open source programming language, being able to access data related to the field from different databases and visualize them with graphs, being able to solve the encountered statistics and econometrics problems by coding.			
Course Content	Concept of Algorithm, Flowcharts, Basic Vector and Matrix Operations, Data Structures, Lists, Arrays, Loops, Data Sources, Graphs, Descriptive Statistics, Regression Analysis			
References	R Programlamaya Giriş, (2021), Atınç Yılmaz, KODLAB R ile Betimsel İstatistik, (2016), Necmi Gürsakal, Dora İstatistikte R ile Programlama, (2014), Necmi Gürsakal, Dora R ile Programlama, (2017), Yalçın Özkan ve Burak Özkan, Papatya Bilim			
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Discussion Applied Explanation Computer Aided Instruction			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define a given problem, determine its critical points and transform it into flow charts.

2	To be able to code loop and decision structures.
3	To be able to code the solution prepared as a flow chart in the language of the open-source program.
4	To be able to run and test the program and fix syntax and runtime errors.
5	To be able to install and run libraries in the open-source program.
6	To be able to solve and interpret statistical and econometric problems with the help of the open-source programming language.
7	To be able to visualize the data appropriately.

Weekly Topics and Preparation	
Week	Topics
1. Week	Algorithm Concept, Problem Solving and Flowcharts
2. Week	Program Introduction, Variable Definition, Basic Arithmetic, Derivative and Integral Operations
3. Week	Matrix Definition, Indices and Matrix Operations
4. Week	Decision Structures: if, if else, if else if
5. Week	Loops: for, while, repeat
6. Week	Applications: Decision Structures and Loops
7. Week	Generating Random Data from Some Statistical Distributions and Statistical Experiments
8. Week	Data Types (Vector, Matrix, Array, Data Frame, Factor and List Type), Data Transfer and Editing
9. Week	Graphs and Visual Analysis
10. Week	Function Creation: Descriptive Statistics Output
11. Week	Function Creation: Single Variable Regression Analysis Output
12. Week	Function Creation: Multivariable Regression Analysis Output (Matrix Approach)
13. Week	Tables and Reporting
14. Week	Ready Statistical Functions

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00

Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	2	7,00	14,00
Midterm Exam (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			143,00
Total Workload / 30 (Hour)			4,77
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	5	4	5	2	4	5	2	5	2
L.O.2	4	3	2	4	5	2	3	2	5	2	5	3
L.O.3	5	3	4	4	5	3	4	3	4	2	5	2
L.O.4	4	2	4	5	5	3	4	3	4	2	5	2
L.O.5	4	5	3	4	4	2	3	2	5	1	5	1
L.O.6	5	5	4	4	5	4	5	5	5	2	5	4
L.O.7	4	5	5	5	5	4	3	5	5	1	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Data Science

Data Science

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Data Science			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	This course aims to teach, apply and interpret Data Science techniques and methods.			
Course Content	Basic concepts of data science, application development stages in data science, data set creation and loading of ready data sets, review and preparation processes on the data set, adding and removing attributes, data filtering, completing missing data, obtaining basic statistical information, outlier detection, data visualization, machine learning algorithms			
References	Doç. Dr. Deniz KILINÇ, Nezahat BAŞEĞMEZ, "Uygulamalarla Veri Bilimi", Abaküs, 2018. A. Neagoie, D. Bourke, Complete Machine Learning & Data Science Bootcamp 2021.			

Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Discussion Sample Application Presentation
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the basic concepts of data science.
2	To be able to use basic statistical knowledge for data science.
3	To be able to apply the stages of extracting useful information from data.
4	To be able to use data science and modeling tools.
5	To be able to use basic algorithm knowledge for data science.
6	To be able to perform empirical applications based on real data.
7	To be able to use computer software to use data science techniques and methods.

Weekly Topics and Preparation	
Week	Topics
1. Week	Introduction to data science
2. Week	Application development stages in data science
3. Week	A look at the tools used in data science
4. Week	Creating a data set and loading ready data sets
5. Week	Analysis and preparation processes on the data set
6. Week	Adding and removing attributes
7. Week	Filtering data, completing missing data
8. Week	Obtaining basic statistical information
9. Week	Outlier detection
10. Week	Data visualization
11. Week	Data visualization

12. Week	Machine learning algorithms
13. Week	Machine learning algorithms
14. Week	Application

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	4	3	3	3	4	2	4	3
L.O.2	5	5	4	5	4	3	3	3	4	2	4	3
L.O.3	5	5	4	5	5	4	3	4	4	2	4	3
L.O.4	4	4	3	4	4	3	3	3	4	2	5	4
L.O.5	4	4	3	4	4	3	3	3	4	2	5	4
L.O.6	5	5	4	5	5	4	4	4	4	3	5	4
L.O.7	5	4	3	4	4	3	3	3	5	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Data Visualization

Data Visualization

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Data Visualization			
Course Language	Turkish			
Course Level	Undergraduate			

Course Type	Elective
Prerequisites	None
Course Objective	This course aims to teach students the basic areas of data visualization: data collection, data cleaning, data analysis and data visualization.
Course Content	Definition and purpose of Data Visualization, data visualization principles, data visualization rules, data visualization tools, data preprocessing, chart types, scatter plots, color selection, choosing the appropriate visualization tool for the data, creating data tables, mapping, ethics in data visualization applications
References	Bozkurt, A. (2024). Python: Veri Analizi, Görselleştirme ve Yapay Zekâ, Hiper Yayın. Fry, B. (2008). Visualizing data: Exploring and explaining data with the processing environment. O'Reilly Media, Inc Tufte, E. (1983). The Visual Display of Quantitative Information, Graphics Press.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to understand the history and effects of data visualization.
2	To be able to understand current applications of data visualization.
3	To be able to understand the basics of data and data visualization.
4	To be able to use basic algorithms and techniques in data visualization.
5	To be able to apply data visualization techniques.
6	To be able to apply basic data visualization tools.
7	To be able to select appropriate software and graphic types to model and visualize data.
8	To be able to use computer software for data visualization.

Weekly Topics and Preparation

Week	Topics
1. Week	Definition and purpose of Data Visualization
2. Week	Principles of data visualization
3. Week	Rules of data visualization
4. Week	Data visualization tools
5. Week	Data preprocessing
6. Week	Chart types
7. Week	Scatter plots
8. Week	Color selection
9. Week	Choosing the appropriate visualization tool for the data
10. Week	Creating data tables
11. Week	Mapping
12. Week	Ethics in data visualization applications
13. Week	Application -1
14. Week	Application -2

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	60

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	1,00	1,00
Final Exam	1	1,00	1,00
Course Participation	14	3,00	42,00
Application/practical	7	1,00	7,00
Problem Solving	5	1,00	5,00
Self-study	14	2,00	28,00
Application/practical	7	3,00	21,00
Final Exam (Self-study)	8	3,00	24,00
Reading	12	1,00	12,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	3	2	3	3	2	2	2	3	2	2	2	2
L.O.2	4	3	4	4	4	3	3	4	3	2	3	3
L.O.3	5	4	4	4	4	3	3	4	3	2	4	4
L.O.4	5	4	4	4	4	3	3	4	4	2	5	4
L.O.5	5	4	4	5	4	3	3	4	4	2	5	4
L.O.6	5	4	4	4	4	3	3	4	4	2	5	4
L.O.7	5	4	4	5	4	3	3	4	5	3	5	4
L.O.8	5	4	3	4	4	3	3	3	5	3	5	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Multicriteria Decision Making

Multicriteria Decision Making

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Multicriteria Decision Making			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The main objective of the course is to examine the decision-making process and different decision-making methods. To provide awareness of decision environments where different alternative situations that contradict each other are involved.			
Course Content	Introduction to multi-criteria decision making (MCDM), basic approaches to multi-criteria decision making, formulation and classification of multi-criteria decision problems, multi-objective optimization approach, applications in areas related to the department.			
References	Yaralıoğlu, K. (2010). Karar Verme Yöntemleri, Ankara: Detay Yayıncılık. Triantaphyllou, E., 2000 Multi-Criteria decision making methods: a comparative study, Springer Gal, T., et al., Multicriteria decision making: advances in MCDM models, algorithms, theory and applications, Springer, 1999 Hwang, C. L.; Yoon, K. Multiple Attribute Decision Making: A State of the Art Survey, New York: Springer-Verlag, 1981			
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Assignment			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				

Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems in the field.
2	To be able to apply appropriate theoretical infrastructure for solving problems.
3	To be able to evaluate basic solutions to problems.
4	To be able to solve with the help of computer programs.
5	To be able to define data on the computer.
6	To be able to read literature.
7	To be able to develop models on different subjects.

Weekly Topics and Preparation	
Week	Topics
1. Week	Multi-Criteria Decision Models Scope, Components, Classification, Purpose
2. Week	AHP Method
3. Week	ANP Method
4. Week	Entropy Method
5. Week	Topsis Method
6. Week	Topsis Method Applications
7. Week	Electre Method
8. Week	Electre Method Applications
9. Week	PROMETHEE I_II
10. Week	PROMETHEE I_II Applications
11. Week	VIKOR METHOD
12. Week	CP Method
13. Week	Maut Benefit Analysis
14. Week	Mixed Applications

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			150,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5
L.O.3	4	5	5	5	5	5	4	2	4	5	5	5
L.O.4	4	5	4	5	4	4	3	3	4	4	5	5
L.O.5	5	4	5	5	5	4	3	3	5	5	4	4
L.O.6	4	5	5	4	5	5	4	2	4	4	4	4
L.O.7	5	5	5	5	5	5	4	2	5	5	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Chess

Chess

Course Details				
Code	T	A	C	ECTS
EKOFADSDXX	3	0	3	5
Course Name	Chess			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	Teaching and developing chess opening, endgame, combination techniques.			
Course Content	To provide strategic thinking skills to future manager candidates by ensuring that the rules and basics of the chess game, which we can think of as a			

	projection or simulation of life, can be learned and motivation and concentration concepts can be based on practice.
References	Türkiye Satranç Federasyonu-Başlangıç Düzey Satranç Ders Kitabı Satrançta Strateji ve Açılış Teorisi Ansiklopedisi- H. Sertaç Dalkıran Santranç Ders Kitabı Mustafa Alper YILDIZ Her Yönüyle Satranç Peter Kurzdorfer
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Group Work
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to think strategic.
2	To be able to use a software program to solve problems.
3	To be able to evaluate basic solutions to problems.
4	To be able to use techniques that will help to understand the nature of the problems that may be encountered and to reach a solution.
5	To be able to distinguish between tactical and strategic decisions in application skills for long-term decisions.
6	To be able to acquire and use coordination, planning, and quick-thinking skills.
7	To be able to develop attention and concentration skills.

Weekly Topics and Preparation	
Week	Topics
1. Week	Course Description, Course Content Information, General Definitions
2. Week	Problem Definition
3. Week	Thinking Theories
4. Week	Defining chess components
5. Week	Chess federation definitions-rules

6. Week	Opening techniques
7. Week	Opening Techniques
8. Week	Variants
9. Week	Variants
10. Week	Strategy Development
11. Week	Combinezones
12. Week	Endgame Strategies
13. Week	Winning tactics in chess
14. Week	Chess philosophy

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	4	5	5	5	5	5	4	2	4	5	5	5
L.O.2	4	5	5	5	5	5	4	2	4	5	5	5

L.O.3	4	5	5	5	5	5	4	2	4	5	5	5
L.O.4	4	4	4	4	5	5	4	2	4	4	4	4
L.O.5	5	4	4	4	5	5	4	3	5	4	5	5
L.O.6	4	4	4	4	4	4	4	3	4	5	5	5
L.O.7	4	5	5	5	4	4	4	2	4	5	4	4

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

University Non-Field Elective Courses

Statistical Literacy (Out-of-field Elective)

Statistical Literacy

Course Details				
Code	T	A	C	ECTS
ADSDXXX	3	0	3	5
Course Name	Statistical Literacy			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	The purpose of this course is to provide students with the ability to analyze and interpret data statistically.			
Course Content	Definition and scope of statistics, basic concepts related to statistics, variables and scales, sampling, data collection techniques, frequency distributions and graphs, measures of central tendency, measures of central distribution, indices, probability and estimation, covariance and correlation, regression analysis, basic concepts related to time series			
References	Necati Alp Erilli (2014) İstatistik 2. Seçkin Yayıncılık Fikri Akdeniz (2010). Olasılık ve İstatistik. Baki Kitabevi Özer Serper (2014) İstatistik 2. Ezgi Kitabevi M. R. Spiegel ve L.J. Stephens (2013). İstatistik. Nobel Yayınevi			
Planned Learning Activities and Teaching Methods	Lecture Question and Answer Discussion Computer Aided Instructure Applied Explanation Sample Question Solution			
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.			
Instructor(s)				
Assistant Instructors of the Course				
Mode of Delivery	Face to Face			

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems in daily life.
2	To be able to apply the appropriate theoretical infrastructure for solving problems.
3	To be able to evaluate the basic solutions of problems.
4	To be able to solve them with the help of computer programs.
5	To be able to define data on the computer.
6	To be able to enter data into the computer.
7	To be able to do basic level statistical analysis on the computer.

Weekly Topics and Preparation	
Week	Topics
1. Week	Definition and scope of statistics
2. Week	Basic concepts related to statistics
3. Week	Variables and scales
4. Week	Sampling
5. Week	Data collection techniques
6. Week	Frequency distributions and graphs
7. Week	Measures of central tendency
8. Week	Measures of central distribution
9. Week	Indices
10. Week	Probability and estimation
11. Week	Covariance and Correlation
12. Week	Regression Analysis
13. Week	Basic concepts related to time series
14. Week	Application

Assessment Methods (%)		
1	Application/practical	30
2	Final Exam	50
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00

Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			4,70
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	2	4	1	2	1	1	3	4
L.O.2	5	4	4	4	3	3	3	4	2	1	2	5
L.O.3	5	3	3	3	3	3	3	4	2	1	2	4
L.O.4	4	4	5	5	4	5	4	5	3	2	3	5
L.O.5	5	5	5	4	4	4	3	4	4	1	4	5
L.O.6	5	4	4	4	5	4	5	4	5	2	5	5
L.O.7	5	5	5	4	4	4	5	4	5	2	5	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.

Decision Analysis (Out-of-field Elective)

Decision Analysis

Course Details				
Code	T	A	C	ECTS
ADSDXXX	3	0	3	5
Course Name	Decision Analysis			
Course Language	Turkish			
Course Level	Undergraduate			
Course Type	Elective			
Prerequisites	None			
Course Objective	To provide students with the skills to model, solve and interpret the results obtained from a technical and economic perspective using linear programming and integer programming techniques for decision-making problems.			
Course Content	The general characteristics of Linear Programming, which is the basis of auxiliary optimization techniques in decision making, the establishment of linear decision models, graphical solution, Integer Programming and the solution of models with the Lindo program and the interpretation of the results are emphasized.			
References	İmdat Kara, Doğrusal Programlama, Bilim Teknik Yayınevi, 2000. Ahmet Öztürk, Yöneylem Araştırması, Ekin Kitabevi, 2009.			

	Aydın Ulucan, Yöneylem Araştırması, (İşletmecilik Uygulamalı Bilg. Dest. Modelleme), Siyasal Kitabevi, 2005. A. Hamdy TAHA, Yöneylem Araştırması, Literatür Yayıncılık, 2000. Wayne L. WINSTON, Operations Research, Thomson, Fourth Edition, 2004.
Planned Learning Activities and Teaching Methods	Theoretical Presentation Lecture Question and Answer Sample Question Solution Discussion
Other Recommended Issues for the Course	Will be announced at the beginning of the semester.
Instructor(s)	
Assistant Instructors of the Course	
Mode of Delivery	Face to Face

Learning Outcomes	
Upon completion of this course, the student will:	
1	To be able to define problems in the field.
2	To be able to apply appropriate theoretical infrastructure for solving problems.
3	To be able to evaluate basic solutions to problems.
4	To be able to solve with the help of computer programs.
5	To be able to define data on the computer.

Weekly Topics and Preparation	
Week	Topics
1. Week	Course Description, System Approach, Scientific Method Steps, Model Types, Mathematical Model Definition Concepts, Problem Definition, Decision Making Definition.
2. Week	Linear Programming Model Definition? What are its components? What are its assumptions?
3. Week	Where is it used? Why is it needed?
4. Week	Setting up a Linear Programming Model - Examples - Graphical Solution Method -
5. Week	Setting up a Linear Programming Model - Examples - Simplex Definition
6. Week	Introduction to the Lindo program, Solution Applications with Lindo
7. Week	Setting Up a Model
8. Week	Setting Up a Model

9. Week	Integer Programming Method, Definition, Types, Modeling Requirements
10. Week	Setting Up an Integer Programming Model - Examples
11. Week	Setting Up an Integer Programming Model - Examples
12. Week	Setting Up a Model - Examples
13. Week	Solution Applications with Lindo
14. Week	Setting Up a Model - Examples

Assessment Methods (%)		
1	Application/practical	40
2	Final Exam	40
3	Assignments	20

Workload and ECTS Calculation			
Activities	Number	Duration (Hour)	Total Workload
Midterm	1	2,00	2,00
Final Exam	1	2,00	2,00
Course Participation	14	3,00	42,00
Problem Solving	6	2,00	12,00
Self-study	6	2,00	12,00
Application/practical	10	2,00	20,00
Assignments (Self-study)	7	2,00	14,00
Assignments	1	10,00	10,00
Midterm (Self-study)	1	12,00	12,00
Final Exam (Self-study)	1	15,00	15,00
Total			141,00
Total Workload / 30 (Hour)			5,00
ECTS			5

Program Learning Outcome Relationship												
	P.O.1	P.O.2	P.O.3	P.O.4	P.O.5	P.O.6	P.O.7	P.O.8	P.O.9	P.O.10	P.O.11	P.O.12
L.O.1	5	4	3	4	2	4	1	2	1	1	3	4
L.O.2	5	4	4	4	3	3	3	4	2	1	2	5
L.O.3	5	3	3	3	3	3	3	4	2	1	2	4
L.O.4	4	4	5	5	4	5	4	5	3	2	3	5
L.O.5	5	5	5	4	4	4	3	4	4	1	4	5

Program Outcomes:

P.O.1.

Understand fundamental theories in econometrics, statistics, operations research, and data science.

P.O.2.

The goal is to specialize in both theoretical and practical aspects of at least one field from statistics and operations research.

P.O.3.

Improve communication skills with employees and team members about econometrics, statistics, operations research, data science, and economics.

P.O.4.

Use knowledge of econometrics, statistics, operations research, and data science to interpret data, analyze problems, and propose solutions for decision-making, implementation, and behavior in public and private sector institutions and organizations.

P.O.5.

Conduct research and work on topics related to econometrics, statistics, operations research, and data science with an open mind for innovative ideas and analytical thinking.

P.O.6.

As a project manager or participant, perform tasks aligned with project objectives for econometric analysis in public and private sectors.

P.O.7.

Recognize the importance of continuous learning in econometrics, statistics, operations research, data science, and economics within the context of societal progress and transformations.

P.O.8.

To effectively convey, both orally and in writing, to public officials, private sector managers, and stakeholders working with civil society organizations the knowledge, skills, and recommendations about econometrics, statistics, operations research, and economics.

P.O.9.

To use computer software and information and communication technologies at least at an "advanced level," as defined by the European Computer Driving License (ECDL) with the fundamental computer skills needed for data science, operations research, econometrics, and statistics.

P.O.10.

To follow the knowledge in their field and communicate with colleagues by using at least a B1 General Level foreign language according to the European Language Portfolio.

P.O.11.

Use at least one computer software to conduct studies in econometrics, statistics, and operations research.

P.O.12.

Collect, analyze, interpret, report, and present quantitative data in accordance with scientific criteria and the ethical values of both the public and private sectors. Maintain awareness of universal social rights, social justice, quality, cultural values, sustainability, and occupational health and safety.