



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Multivariate Statistics and Data Analysis							
Course Code		FEK523		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	5	Workload	125 ( <i>Hours</i> )	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The objective of this course is to cover a high level of Multivariate Statistics and its applications.							
Course Content		Obtaining multivariate descriptive statistics							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

### Recommended or Required Reading

1	Johnson, R.A. ve Wichern, D.W., (2007), Applied Multivariate Statistical Analysis, 6th Edn, Pearson International Edition.
2	Johnson, D.E. (1998) Applied Multivariate Methods for Data Analysts, Duxbury.

Week	Weekly Detailed Course Contents	
1	Theoretical	Types of variables, Data Matrices and Vectors, Data Subscripts
2	Theoretical	The Multivariate Normal Probability Density Function, Bivariate Normal Distributions
3	Theoretical	Mean Vectors and Variance-Covariance, Correlation and Standardized data matrices
4	Theoretical	Three-Dimensional Data Plots, Plots of Higher Dimensional Data, Preparing Individual Assignments
5	Theoretical	Multivariate Normal Distribution Contour Plot
6	Theoretical	Eigenvalues and eigenvectors, Geometric Descriptions
7	Theoretical	Eigenvalues and eigenvectors, Geometric Descriptions
8	Intermediate Exam	Mid-term
9	Theoretical	Principal Components Analysis on the Variance-Covariance Matrix , Preparing Individual Assignments
10	Theoretical	Estimation of Principal Components, PCA on the Correlation Matrix P
11	Theoretical	Choosing the Appropriate Number of Factors, Rotating Factors
12	Theoretical	Classification and Discriminant for two Multivariate Normal Populations, Preparing Individual Assignments
13	Theoretical	Cost Functions and Prior Probabilities,
14	Theoretical	A General Discriminant Rule (Two Populations)
15	Practice	Application
16	Final Exam	Final

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Individual Work	7	2	2	28
Midterm Examination	1	10	1	11
Final Examination	1	15	1	16
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5

\*25 hour workload is accepted as 1 ECTS



**Learning Outcomes**

1	Understanding statistical concepts of linear algebra terms (rank, determinant, eigenvalue, eigenvector etc.),
2	Obtaining multivariate descriptive statistics (mean vector, variance-covariance matrix, correlation matrix etc.),
3	Interpreting three or more dimensional graphs,
4	Applying Principal Component Analysis,
5	Applying Factor Analysis,

**Programme Outcomes** (*Econometrics Master*)

1	Understanding the concept of econometric
2	Ability to estimate econometric models
3	Test to the estimated reliability of the econometric model
4	Learning time series analysis
5	Recognition of financial assets and analysis that estimates the decisions of economic units
6	Be able to use econometric methods developed specifically for analysis of financial data
7	To be able to use computer programs needed in the field financial economics as well as information and communication technologies in advanced levels
8	Provision of the information that will be base for the econometric applications on money theories, theories of international trade and finance
9	Considering a scientific research, to be able to make a profound literature research, analysis, estimations and reporting findings in a scientific work

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

	L1	L2	L3	L4	L5
P1	4	2	4	3	4
P2	3	3	2	5	2
P3	2	3	5	3	5
P4	5	4	3	2	3
P5	3	3	2	4	2
P6	2	4	2	2	3
P7	5	5	3	5	2
P8	4	2	4	3	2
P9	2	4	4	3	2

