



AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCIENCES
BIOSTATISTICS
BIOSTATISTICS (MEDICAL)
BIOSTATISTICS (MEDICAL) MASTER
COURSE INFORMATION FORM

Course Title	Applied Multivariate Statistical Methods-II								
Course Code	BİS520	Course Level			Second Cycle (Master's Degree)				
ECTS Credit	6	Workload	152 (Hours)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	Classification and examining the dependency structure with dimensionality decomposition in multivariate data sets and hypothesis tests								
Course Content	Principal component analysis, factor analysis, canonical correlation analysis, discriminant analysis, cluster analysis, multi-dimensional scaling, correspondence analysis								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Demonstration, Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Tatlıdil, H. (1996). Uygulamalı Çok Değişkenli İstatistiksel Analiz, Ankara: Cem Web Ofset Ltd.
2	Özdamar, K. (2004). Paket programlar ile istatistiksel veri analizi (çok değişkenli analizler). Kaan Kitabevi, Eskişehir.
3	Johnson, R. A., & Wichern, D. W. (2002). Applied multivariate statistical analysis (Vol. 5, No. 8). Upper Saddle River, NJ: Prentice hall.
4	Sharma, S. (1995). Applied multivariate techniques. John Wiley & Sons, Inc..

Week	Weekly Detailed Course Contents	
1	Theoretical	Principal component analysis, obtaining principal components, determining the number of principal components and application
	Practice	Application with package programs
2	Theoretical	Introduction to factor analysis, the differences between factor analysis and principal component analysis and factor models
	Practice	Application with package programs
3	Theoretical	Principal coefficients and scores, factor rotation methods
	Practice	Application with package programs
4	Theoretical	The aim of canonical correlation analysis, definitions of canonical variables and obtaining these variables
	Practice	Application with package programs
5	Theoretical	Obtaining canonical correlations, the significance tests of canonical correlations.
	Practice	Application with package programs
6	Theoretical	Introduction to discriminant analysis, basic assumptions of discriminant analysis
	Practice	Application with package programs
7	Theoretical	Determining discriminant functions
	Practice	Application with package programs
8	Intermediate Exam	Midterm exam
9	Theoretical	The significance test of canonical function, Two and multi-group classification in discriminant analysis
	Practice	Application with package programs
10	Theoretical	The significance test of canonical function, Two and multi-group classification in discriminant analysis
	Practice	Application with package programs
11	Theoretical	Introduction to clustering analysis, similarity and distance metrics using for clustering
	Practice	Application with package programs



12	Theoretical	Clustering methods and determining the number of clusters
	Practice	Application with package programs
13	Theoretical	Introduction to multi-dimensional analysis and multi-dimensional methods
	Practice	Application with package programs
14	Theoretical	Correspondence analysis
	Practice	Application with package programs
15	Theoretical	Literature review and discussion
	Practice	Literature review and discussion
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Lecture - Practice	14	0	2	28
Assignment	1	10	0	10
Quiz	14	2	1	42
Midterm Examination	1	20	2	22
Final Examination	1	20	2	22
Total Workload (Hours)				152
[Total Workload (Hours) / 25*] = ECTS				6

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To be able to analyse multivariate statistics with several data sets by using statistical softwares such as SPSS, Statistica, Systat, Minitab
2	To be able to apply the multivariate statistical methods with theoretical or real life data sets by using related statistical softwares. Homework preparation and presentations.
3	To learn how to apply Principal component analysis, factor analysis
4	To learn how to do multi-dimensional scaling and correspondence analysis
5	To be able to analyse Canonical correlations, Discriminant analysis and Cluster analysis

Programme Outcomes (Biostatistics (Medical) Master)

1	To be able to understand the interdisciplinary interaction related with biostatistics.
2	to be able to use Theoretical and practical knowledge at the level of expertise.
3	To be able to interpret the information by integrating information from different disciplines and create new information
4	To be able to analyze the problems encountered by using research methods
5	to be able to conduct a study as an independent specialist
6	To be able to formulate solutions for complex unpredictable problems encountered by developing new approaches and taking responsibility.
7	To be able to resolve problems in environments that require leadership.
8	To be able to evaluate and direct knowledge and skills with a critical approach at the level of expertise.
9	To be able to give statistical advise at the beginning stages of preparing health related projects
10	To be able to get the knowledge and the ability of using statistical packages

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

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



P10	5	5	5	4
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