MULTIVARIATE STATISTICS

1	Course Title:	MULTIVARIATE STATISTICS
2	Course Code:	BIL5120
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	4.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	No
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. AYSAN ŞENTÜRK
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	Email: aysan@uludag.edu.tr Tel: 224 2942231 Uludağ Üniversitesi Eğitim Fakültesi, A Blok, BÖTE Bölümü, 16059 Nilüfer,Bursa
17	Website:	
18	Objective of the Course:	The aim of the course is the examination of the structure of the dependency between the units and units of classification by expressing a large number of variables is an expression as a smaller number of variable with dimensionality reduction methods in multivariate data set.
19	Contribution of the Course to Professional Development:	Statistical methods and techniques of education is to give the students can apply to their fields.
20	Learning Outcomes:	
	1	To be able to apply the necessary techniques in order to make inferences about the relationships based on multivariate data.
	2	To be able to know the parameters of multivariate normal distribution.
	3	To be able to apply of multivariate test of hypotheses
	4	To be able to apply of factor analysis.
	5	To be able to apply of cluster analysis.
	6	To be able to use logistic regression analysis for a purpose.
	7	To be able to multivariate statistical methods use in many interdisciplinary branches of sciences.
	8	To be able to perform analyses using statistical package programs during the application of multivariate statistical methods for data sets.
	9	
	10	
21	Course Content:	

Course Content:

Week	Theoretical	Practice

1	Basic concepts areas of use for multivariate statistical analysis	
2	Matrix theory for multivariate statistical analysis	
3	Continious multivariate distributions	
4	Multivariate normal distribution	
5	Multivariate hypothesis testing	
6	Principal component analysis	
7	Factor analysis	
8	Canonical correlation analysis	
9	Discriminant analysis	
10	Logistic regression analysis	
11	Cluster analysis	
12	Multidimensional scale	
13	Comparison of principal component analysis and multidimensional scale	
14	Multivariate regression analysis	

22	Textbooks, References and/or Other Materials:	1. Hüseyin Tatlıdil, Uygulamalı Çok Değişkenli İstatistiksel Analiz, Ziraat Matbaacılık A. Ş. Ankara, 2002. 2. Editör: Şeref Kalaycı, SPSS Uygulamalı Çok Değişkenli İstatistik Teknikleri, Asil Yayınevi, 2010. 3. Reha Alpar, Çok Değişkenli İstatistiksel Yöntemler, Detay Yayıncılık, 2011. 4. Ali Sait Albayrak, Uygulamalı Çok Değişkenli İstatistik 2012. 5. Ali Sait Albayrak, Uygulamalı Çok Değişkenli İstatistik 6. Wolfrang Karl Hardle & Leopold Simar, Applied Multivariate Statistical Analysis, Springer-Verlag, 2012. 7. Ingwer Borg & Patrick J.F. Groenen, Modern Multidimensional Scaling: Theory and Applications, Springer, 2005. 8. Jan De Leeuw & Patrick Mair, Multidimensional Scaling Using Majorization: SMACOF in R, 2009. 9. Brian Everitt & Torsten Hothorn, An Introduction to Applied Multivariate Analysis with R, Springer, 2011. 10. Bruce L. Brown, Suzanne B. Hendrix, Dawson W. Hedges, Timothy B. Smith, Multivariate Analysis for the Biological Sciences, John Wiley & Sons, 2012. 11. Joseph F. Hair, William C. Black, Barry J. Babin, Rolph

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	5.00	70.00
Homeworks	1	10.00	10.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	12.00	12.00
Total Work Load			120.00
Total work load/ 30 hr			4.00
ECTS Credit of the Course			4.00

23	Assesment

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	100.00
Total	1	100.00
Contribution of Term (Year) Learning Activities to Success Grade		0.00
Contribution of Final Exam to Success Grade		100.00

Total	100.00
Measurement and Evaluation Techniques Used in the Course	Measurement and evaluation are made with multiple choice test questions and written questions.

24 ECTS / WORK LOAD TABLE

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	4	5	2	2	4	4	5	4	4	3	3	0	0	0	0
ÖK2	4	3	5	5	4	4	5	5	3	3	4	4	0	0	0	0
ÖK3	4	3	4	4	5	5	5	4	4	4	3	4	0	0	0	0
ÖK4	4	4	3	3	4	4	5	5	5	4	4	3	0	0	0	0
ÖK5	3	3	4	4	3	3	4	4	5	5	4	4	0	0	0	0
ÖK6	3	3	4	4	5	5	4	4	5	5	4	5	0	0	0	0
ÖK7	3	3	4	4	5	5	4	4	5	5	4	5	0	0	0	0
ÖK8	3	3	4	4	5	5	4	4	3	3	3	4	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**