AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Decision Trees						
Course Code		BİS533		Couse Level		Second Cycle (Master's Degree)		
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of the course is to give a basic knowledge of statistical concepts in decision trees and to give training in the use of computers for statistical calculations and in the evaluation of the quality of statistical investigations.						
Course Content		Base concepts in decision trees, theory and applications of CHAID, C&RT, QUEST, C4.5, C5.0 methods.						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods			Case Study, Project Based Study, Individual Study					
Name of Lecturer(s)								

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Özkan, Y. (2008). Veri madenciliği yöntemleri. Papatya Yayıncılık Eğitim.
2	Breiman L, Friedman JH, Olshen RA, Stone CJ (1984) Classification and regression trees. Chapman and Hall/CRC,
3	Han, J., Pei, J., & Kamber, M. (2011). Data mining: concepts and techniques. Elsevier.
4	Weinstein MC, Fineberg HV. (1980). Clinical Decision Analysis, W.B. Saunders Company.

Week	Weekly Detailed Course Contents	
1	Theoretical	Terminology and Goals
2	Theoretical	Using decision trees for health sciences
3	Theoretical	Structure of decision trees and basic concepts
4	Theoretical	Criteria for choosing and stopping the best split in decision tree building
5	Theoretical	Overfitting and Underfitting problems
6	Theoretical	Pruning techniques
7	Theoretical	Regression Trees
8	Intermediate Exam	Midterm exam
9	Theoretical	Classification Trees
10	Theoretical	CART algorithm and features
11	Theoretical	Classification by CART algorithm
12	Theoretical	Regression by CART algorithm
13	Theoretical	CHAID analysis
14	Theoretical	Quest analysis
15	Theoretical	Literature review and discussion
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	2	10	0	20
Seminar	2	15	2	34
Reading	14	0	1	14
Individual Work	10	0	2	20
Quiz	14	2	1	42
Midterm Examination	1	10	1	11

Final Examination	1	15	2	17
		Total Workload (Hours)		200
		[Total Workload (Hours) / 25*] = **ECTS**		8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Be able to relate questions on random variation and observed data, to both applied and theoretical concepts: variables/random variables, distributions and association between variables
2	Be able to explain the concepts of decision trees
3	Be able to explain a statistical decision model and concepts as decision, uncertainty and values
4	To make parameter optimization in decision trees models
5	Be able to describe basic techniques for statistical inference and be able to use them in some statistical models

Programme Outcomes *(Biostatistics Master)*

1	To be able to understand the interdisciplinary interaction releated with biostatistics.
2	to be able to use Theoretical and practical knowledge at the level of expertise.
3	To be able to nterpret the information by integrating information from different disciplines and create new information
4	To be able to nalyze 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 to give statistical advise at the begining 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	3	3	3	4
P2	4	4	3	5
P3	4	3	3	4
P4	4	3	2	
P5	4	3	2	5
P6	4	3	3	4
P7	3	2	2	4
P8	4	3	3	4
P9	3	1	2	5
P10	3	2	2	5