



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

Course Title	Decision Trees								
Course Code	BİS533		Course 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)	Prof. İmran KURT ÖMÜRLÜ								

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 (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	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

