

INTRODUCTION to MACHINE LEARNING

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
INTRODUCTION to MACHINE LEARNING	COE3167980	Fall Semester	3+0	3	6
Prerequisites Courses	OLASILIK VE RASSAL DEĞİŞKENLER				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Elective				
Course Coordinator	Prof.Dr. Bahadır Kürşat GÜNTÜRK				
Name of Lecturer(s)	Prof.Dr. Bahadır Kürşat GÜNTÜRK				
Assistant(s)					
Aim	To be able to apply and evaluate machine learning techniques.				
Course Content	This course contains; Elements of machine learning,Regression,Basics of classification,Bayesian classifier,Logistic regression,Support vector machines,Neural networks,Convolutional neural networks,Decision trees,Ensemble methods,Feature selection,Principal component analysis,Clustering,Model evaluation.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Applies regression techniques			12, 14, 16, 6, 9	A, E	
Evaluates classification techniques			12, 14, 16, 6, 9	A, E	
Applies unsupervised machine learning techniques			12, 14, 16, 6, 9	A, E	
Applies feature selection / analysis techniques			12, 14, 16, 6, 9	A, E	
Teaching Methods	12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 6: Experiential Learning, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, E: Homework				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Elements of machine learning				
2	Regression				
3	Basics of classification				
4	Bayesian classifier				
5	Logistic regression				
6	Support vector machines				
7	Neural networks				
8	Convolutional neural networks				
9	Decision trees				
10	Ensemble methods				
11	Feature selection				
12	Principal component analysis				
13	Clustering				
14	Model evaluation				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources	
Bishop, "Pattern Recognition and Machine Learning," Springer, (1st edition)	
Duda, Hart, and Stork, "Pattern Classification," Wiley-Interscience, (2nd edition)	