

MIS4311 Machine Learning Applications

Semester	Fall 2025	
Instructor	Mahmut Bağcı	
E-mail	mahmut.bagci@marmara.edu.tr	
Course Description	This course is designed to teach and implement machine learning algorithms. The topics of this course include practical applications of supervised and unsupervised learning algorithms, artificial neural networks, natural language, audio and image processing.	
Week	Topics	
1	Introduction to Machine Learning	
2	Supervised Learning : Classification and Regression	
3	Logistic Regression	
4	Naïve Bayes' Classifier	
5	Support Vector Machines (SVMs)	
6	Decision Trees, K-Nearest Neighbors (KNNs)	
7	Unsupervised Learning : Clustering (K-means)	
8	Midterm Exam	
9	Artificial Neural Networks (ANNs)	
10	Processing time series data	
11	Visualizing audio data and speech recognition	
12	Natural Language Processing (NLP)	
13	Genetic Algorithms	
14	Image Processing	
15	Reinforcement Learning	
	Final Exam	
Assessments	Number	Percentage
Participation	14 weeks	(10% of midterm and 10% of final exam)
Midterm Exam	1	50 %
Final Exam	1	50 %
Sources	Machine Learning: An Algorithmic Perspective (Second Edition) by Stephen Marsland, CRC Press, 2015.	

*Participation will be measured by lecture attendance.

If you miss more than 4 classes, you can't take your final exam!

Office hours: Monday 13:00 -15:00 PM, Wednesday 13:00 -14:00 PM