

## MIS4311 Machine Learning Applications

Semester		Fall 2025	
Instructor		Mahmut Bağcı	
E-mail		<a href="mailto:mahmut.bagci@marmara.edu.tr">mahmut.bagci@marmara.edu.tr</a>	
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		
Assesments		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