



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Artificial Intelligence Department

AI249 Machine Learning - JNQF Level: 7

First Semester 2024-2025

Course Catalog

3 Credit Hours. This course provides a comprehensive introduction to the field of machine learning, covering fundamental concepts, techniques, and algorithms. Students will learn to analyze data, identify patterns, and make data-driven predictions and decisions using machine learning models. The course covers supervised and unsupervised learning, including key topics such as regression, classification, clustering, and dimensionality reduction. Practical applications and real-world examples will be emphasized throughout the course to illustrate the power and versatility of machine learning in various domains. By the end of the course, students will have a solid understanding of core machine-learning principles. They will be equipped with the skills needed to implement and evaluate machine-learning models using popular programming tools and libraries.

Teaching Method: On Campus

Text Book

Title	Hands-on Machine Learning with. Scikit-Learn, Keras, and TensorFlow
Author(s)	Geron Aurelien
Edition	3rd Edition
Short Name	Ref #1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #2	An Introduction to Statistical Learning: with Applications in Python	Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, Jonathan Taylor	1st Edition	

Instructor

Name	Dr. Malak Abdullah
Office Location	A1-L3

Office Hours	Sun : 10:30 - 12:30 Mon : 12:30 - 13:00 Tue : 10:30 - 12:30 Thu : 10:30 - 12:30
Email	mabdullah@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Thu : 09:30 - 10:30 Room: A2124

Prerequisites		
Line Number	Course Name	Prerequisite Type
1792440	AI244 Artificial Intelligence Programming	Pre./Con.

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	01-introduction	From Ref #1 , From Ref #2
Week 2	02-Machine Learning Maths	From Ref #1 , From Ref #2
Weeks 3, 4	03- Prediction	From Ref #1 , From Ref #2
Weeks 4, 5	04- Linear Regression	From Ref #1 , From Ref #2
Weeks 6, 7	05- Classification	From Ref #1 , From Ref #2
Week 8	06-SVM	From Ref #1 , From Ref #2
Week 9	07-Decision Tree	From Ref #1 , From Ref #2
Weeks 10, 11	08-Ensembling	From Ref #1
Weeks 12, 13, 14	09-Unsupervised learning	From Ref #1

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
CLO1: Understand and explain key machine learning concepts and algorithms. [1SO1] [1L7K1]	30%	

CLO2: Apply machine learning algorithms to real-world datasets and problems. [1SO2] [1L7S1]	20%	
CLO3: Evaluate and interpret the performance of machine learning models using appropriate metrics. [1SO2] [1L7S1]	10%	
CLO4: Design and implement end-to-end machine learning projects, including data preprocessing, model training, and validation. [1SO2] [1L7S1]	20%	
CLO5: Conduct a critical review of existing literature and identify current trends and challenges in machine learning. [1SO1] [1L7K1]	20%	

Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6
50	50				

Relationship to NQF Outcomes (Out of 100%)	
L7K1	L7S1
50	50

Evaluation	
Assessment Tool	Weight
First Exam	10%
Second Exam	15%
Quizzes	15%
Lab	20%
Final Exam	40%

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