



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Data Science Department

DS230 Machine Learning (1)

First Semester 2023-2024

Course Catalog

3 Credit Hours. This course overviews machine learning and its importance for data science. It also provides students with theory and implementation of state-of-the-art machine learning algorithms for large-scale real-world applications. Topics include supervised learning (regression, classification). Accuracy computation alternatives, feature selection and reduction, optimization of classifiers, cross-validation will be covered.

Text Book

Title	Machine Learning for Humans
Author(s)	Vishal Maini & Samer Sabri
Edition	1st Edition
Short Name	Textbook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Additional Textbook	An Introduction to Statistical Learning	Gareth James & Daniela Witten & Trevor Hastie & Robert Tibshirani	2nd Edition	

Instructor

Name	Mr. Jawad Damir
Office Location	A2 L-3
Office Hours	Sun : 10:30 - 12:00 Tue : 10:30 - 12:00 Wed : 10:30 - 11:30 Thu : 10:30 - 12:30
Email	jmdamir@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: M3306

Prerequisites		
Line Number	Course Name	Prerequisite Type
1781010	DS101 Fundamentals Of Data Science	Prerequisite / Study
1781110	DS111 Programming For Data Science (2)	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction to Machine Learning	Part 1 From Textbook
Weeks 2, 3, 4	Linear Regression	Part 2.1 From Textbook
Weeks 5, 6, 7	Logistic Regression	Part 2.2 From Textbook
Weeks 8, 9	Support Vector Machines (SVM)	Part 2.2 From Textbook
Week 10	K-Nearest Neighbors (KNN)	Part 2.3 From Textbook
Weeks 11, 12	Decision Trees and Random Forests	Part 2.3 From Textbook
Weeks 13, 14	Data Preprocessing and Model Optimization	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understanding how to build linear regression models using the gradient descent algorithm, and recognizing how to evaluate the accuracy of this type of machine learning models [1SO6]	30%	
Understanding how to build and evaluate different types of classification models, and being able to use such models to solve real-life classification problems [1SO6]	50%	
Understanding the different techniques to preprocess training data, and recognizing how to optimize the accuracy of machine learning models [1SO6]	20%	

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

Policy

Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 20% of total classes are subject to failure. Penalties may be assessed without regard to the student's performance. Attendance will be recorded at the beginning or end of each class.
Makeup Exams	Makeup exam should not be arranged unless there is a valid excuse. Arrangements to take a makeup exam at a time different from the one scheduled MUST be made prior to the scheduled exam time. In accordance with university regulations, students shall bring a valid excuse that is approved through valid channels in JUST.
Code of Conduct	Cheating in exams is an illegal and unethical activity. Standard JUST sanction policy will be applied in such circumstances.

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