



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

CS 763 Machine Learning

Fall 2021

Course Catalog

3 Credit hours (3 hrs lectures). This course introduces the students to Machine Learning that uses interdisciplinary techniques such as statistics, linear algebra, optimization, and computer science to create automated systems that can sift through large volumes of data at high speed to make predictions or decisions without human intervention. Machine learning has been essential to the success of many recent technologies, including autonomous vehicles, search engines, genomics, automated medical diagnosis, image recognition, and social network analysis, among many others. This class will familiarize students with a broad cross-section of models and algorithms for machine learning and prepare students for research or industry application of machine learning techniques.

Instructor

Instructors	Dr. Malak A. Abdullah
Office Hours and Location	Sun-Tue- 2:00-3:30 (Monday online upon request: 11:00-12:00) A1-L3 or using Microsoft Teams
Office Phone	-
E-mail	mabdullah@just.edu.jo dr.malak.abdelghani@gmail.com
Facebook Group	

Textbooks and References

Hands-on Machine Learning with Scikit-Learn, Keras & TensorFlow 2nd edition,
Aurélien Géron

Ref book1	Ethem Alpaydin, Introduction to Machine Learning, Second Edition, http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=12012
Ref book2	Hands-on Machine Learning with Scikit-Learn & TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems by Aurelien Geron
Ref book3	Hastie, Tibshirani, Friedman, "Elements of Statistical Learning". http://statweb.stanford.edu/~tibs/ElemStatLearn/printings/ESLII_print10.pdf
Ref book4	Machine Learning, Tom Mitchell, McGraw Hill, 1997.

Software

Programming experience is strongly recommended for this course. Please work through the following tutorial if you do not have programming experience:

1. <https://docs.python.org/3/tutorial/>
2. Python Tutorial

Prerequisites

Prerequisites (not mandatory, but it is good to have them)	Python, Algebra, Statistics, Data Structures, Algorithms, and
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Topics	Week number
Introduction to Machine Learning + Algebra + Python	1
Linear and Logistic Regression	2
Classification: SVMs and Decision Trees	4 & 5
Ensemble Learning, Random Forest, Feature Selection	6
Mid Term	7
Neural Network	8 & 9
Convolutional Neural Network	10
Recurrent Neural Network	11
Reinforcement Learning	12
Any Other related topics	13
Project Presentations	14
Final Exam	15

Evaluation

Assessment Tool	Expected Due Date	Weight
Presentation	Once in the semester	5 %
Mid Term	To be announced later	25 %
Project 1 paper	To be announced later	20 %
Project 2 paper	To be announced later	20 %
Final Exam	According to the University final examination schedule	30 %

Policy

Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 10% 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.								
Exams	All exams will be CLOSE-BOOK; necessary algorithms/equations/relations will be supplied as convenient.								
Grading	<p>The grading policy as follows:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">>= 95 A+</td><td style="width: 50%;">>= 90 A</td></tr> <tr> <td>>= 85 B+</td><td>>= 80. B</td></tr> <tr> <td>>= 75 C+</td><td>>= 70. C</td></tr> <tr> <td colspan="2">...etc</td></tr> </table> <p>We may apply average on the grading policy</p>	>= 95 A+	>= 90 A	>= 85 B+	>= 80. B	>= 75 C+	>= 70. C	...etc	
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