



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

CIS722 Data Analytics

Second Semester 2023-2024

**Course Catalog**

3 Credit Hours. This course provides a broad introduction to the key ideas in data analytics and mining. This course teaches the underlying principles required to discover and analyze patterns and relationships in structured and unstructured data. Explore, analyze and leverage data and turn it into valuable, actionable information for analysis. Topics include regression methods, classification, prediction approaches, association rules, clustering analysis, and outlier detection.

**Teaching Method:** On Campus

**Text Book**

<b>Title</b>	Data Mining: Concepts and Techniques
<b>Author(s)</b>	Han, J. and Kamber, M.
<b>Edition</b>	4th Edition
<b>Short Name</b>	Ref# 1
<b>Other Information</b>	2022

**Course References**

<b>Short name</b>	<b>Book name</b>	<b>Author(s)</b>	<b>Edition</b>	<b>Other Information</b>
Ref# 2	Data Analytics Models and Algorithms for Intelligent Data Analysis	Thomas A. Runkler	1st Edition	

**Instructor**

<b>Name</b>	<b>Prof. Hassan Najadat</b>
<b>Office Location</b>	A2 L3
<b>Office Hours</b>	
<b>Email</b>	najadat@just.edu.jo

<b>Class Schedule &amp; Room</b>
Section 1: Lecture Time: Tue : 13:30 - 16:30 Room: A3130

<b>Tentative List of Topics Covered</b>		
<b>Weeks</b>	<b>Topic</b>	<b>References</b>
Week 1	Introduction to Data Analytics	
Weeks 2, 3	Data Preprocessing techniques	
Week 4	Data Warehousing and On-Line Analytical Processing	
Week 5	Decision Tree Inductions	
Week 6	Bayes Classification Methods and Rule-Based Classification	
Week 7	Metrics for Evaluating Classifier Performance	
Week 8	Classification by Backpropagation	
Week 9	SVM, Associative Classification, and KNN	
Week 10	Midterm Exam	
Week 11	Case-Based Reasoning, Genetic Algorithm, Fuzzy Set Approaches	
Week 12	Unsupervised Learning Approaches	
Week 13	Frequent Patterns Analysis, Associations and Correlations.	
Week 14	Recommendation Systems	
Week 16	Outlier Detection Analysis	
Week 16	Project Presentation and Final Exam	

<b>Mapping of Course Outcomes to Program Outcomes</b>	<b>Course Outcome Weight (Out of 100%)</b>	<b>Assessment method</b>
Understand the fundamental concepts and principles of data preprocessing and data visualization to effectively communicate findings to diverse stakeholders.	10%	
Gain proficiency in using statistical methods and techniques to analyze large datasets.	10%	
Acquire knowledge of various machine learning models for descriptive and predictive analytics tasks and their applications in real-world scenarios.	30%	
Develop critical thinking and problem-solving abilities through hands-on projects and case studies in multidisciplinary teams to tackle complex data analytics challenges.	25%	

Demonstrate proficiency in using industry-standard tools and technologies for data analysis, such as Python and SQL	25%	
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Relationship to Program Student Outcomes (Out of 100%)																
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A	B	C	D	E	F	G	H	I	J	K	SO1	SO2	SO3	SO4	SO5	SO6

Evaluation	
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Assessment Tool	Weight
Midterm Exam	30%
Assignments and Readings	20%
Final Exam and Project	50%

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