جـامعة الـزيتونـة الأردنيـة
Al-Zaytoonah University of Jordan
كلية العلوم وتكنولوجيا المعلومات
Faculty of Science and IT

" عراقة وجودة"
"Tradition and Quality"

Course Plan for Master program - Course Plan Development and Updating Procedures/ Data Science	QF01/0413-4.0

Course Plan for Data Science (Master Program) No (2023/2024)
Approved by Deans Council by decision 20/13/2023-2024 dated 02/04/2024

Number of credit hours: (33) Credit Hours	**Teaching system /**

Course type	Social sciences ☐	✓ **Scientific / Technical**	Natural sciences ☐

Teaching style	Percentage of study plan hours/number	The model used (synchronous: asynchronous)
Complete e-learning materials	**18% , 6 credit hours**	**1:1**
Blended learning materials (for Social)	45% , 15 credit hours	1:1
Blended learning materials (for scientific and medical)	**45% , 15 credit hours**	**1:1**
Face-to-face learning materials (for Social)	37% , 12 credit hours	0:3
Face-to-face learning materials (scientific and medical)	**37% , 12 credit hours**	**0:3**

Important note: (Teaching patterns of subjects are distributed at all levels of study in the program, and thesis hours are taught in the blended learning style)

Program vision:

To build specialized competencies in the field of data science, equipped with the knowledge, skills and leaderships, creative and entrepreneurial competences necessary to compete in the global market, through the creative utilization of information technology, modern teaching, and learning strategies.

Program mission and goals:

1. Achieving the conformity of learning outcomes in all areas of specialization with the descriptors of the seventh level (knowledge, skills and competencies) in the National Qualifications Framework.
2. Integrating modern information technology related to data science, and using it creatively in the teaching and learning processes to reach more effective learning; taking into consideration the needs of the learner.
3. Enhancing the principle of life-long self-sustaining learning, and highlighting the learner's creativity in light of global transformations through the application of various teaching and learning strategies.

Program learning outcomes *(MK= Main Knowledge, MS= Main Skills, MC= Main Competences)*

Main knowledge	
MK1	A deep understanding in the advanced topics of data science.
MK2	A sufficient knowledge in scientific research methodology.
MK3	A deep knowledge in the advanced topics of data analytics and information retrieval.
MK4	A detailed knowledge in the advanced topics of machine learning.
Main Skills	
MS1	Applying the advanced machine learning concepts to develop or revise smart algorithms .
MS2	Applying advanced data analytics and statistics on real-life data.
MS3	Applying the scientific research methodology to solve research problems in the fields of data science.
MS4	Proposing solutions to real-life problems in various domains using the advanced concepts of data science
General competencies	
MC1	Adhering to the ethics and professional standards of data science and demonstrating integrity, values and responsible citizenship.
MC2	The ability to communicate effectively and to adhere to the ethics of the scientific research
MC3	The ability to criticize, judge, and to think creatively to propose original solutions.

MC4	The ability to cope with the constant changes in the field of data science.

First: Thesis track (33 credit hours):

Notes	Academic year	Semester	Credit hours	Course name	Course Number	Face to face – learning	Hybrid– learning	E–learning
		guiding					Teaching style	
A: Compulsory requirements (18) credit hours								
	1	1	3	Data Science and Engineering	0142711	•		
	1	2	3	Advanced Machine Learning	0142721	•		
	1	2	3	Data Exploration and Visualization	0142737	•		
	2	1	3	Big Data Analytics	0142741	•		
	1	2	3	Computational Statistics	0142751		•	
	1	1	3	Scientific Research Methodology	0142771			•
B: Elective Requirements (6) Credit Hours								
	2	2	3	Advanced Artificial Intelligence	0142712		•	
	2	1	3	Deep Learning	0142722		•	
	2	2	3	Advanced Information Retrieval	0142731		•	
	1	2	3	Computational Linguistics	0142732		•	
	1	2	3	Web and Social Network Analysis	0142733		•	
	1	2	3	Advanced Data Mining	0142742		•	
	2	2	3	Non Structural Data Base	0142744		•	
	2	1	3	Selected Topics in Data Science	0142752		•	
	2	2	3	Business Data Analysis	0142761		•	
	2	2	3	Artificial Intelligence Seminar	0142772			•
	2	1	3	Data Science Seminar	0142773			•
C: Thesis (9) Credit Hours								
	2	2	3	Thesis	0142799	•		

Second: Comprehensive Track (33 credit hours):

Notes	guiding السنة الدراسي	guiding الفصل الدراسي	Credit hours	Course name	Course Number	Teaching style Face to face	Teaching style Hybrid-learning	Teaching style E-learning
A: Compulsory requirements (18) credit hours								
	1	1	3	Data Science and Engineering	0142711	•		
	1	2	3	Advanced Machine Learning	0142721	•		
	2	1	3	Deep Learning	0142722		•	
	1	2	3	Data Exploration and Visualization	0142737	•		
	1	2	3	Computational Linguistics	0142732		•	
	2	1	3	Big Data Analytics	0142741	•		
	1	2	3	Computational Statistics	0142751		•	
	1	1	3	Scientific Research Methodology	0142771			•
B: Elective Requirements (6) Credit Hours								
	2	2	3	Advanced Artificial Intelligence	0142712		•	
	1	2	3	Web and Social Network Analysis	0142733		•	
	1	2	3	Advanced Data Mining	0142742		•	
	2	2	3	Advanced Information Retrieval	0142731		•	
	2	2	3	Non Structural Data Base	0142744		•	
	2	1	3	Selected Topics in Data Science	0142752		•	
	2	2	3	Business Data Analysis	0142761		•	
	2	2	3	Artificial Intelligence Seminar	0142772			•
	2	1	3	Data Science Seminar	0142773			•
C: Comprehensive Exam (0) credit hours								
	2	2	3	Comprehensive Exam	0142798		•	