



QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Artificial Intelligence Department
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Study plan No.	2021/2022	University Specialization	Artificial Intelligence
Course No.	0142210	Course name	Computing systems for data science and artificial intelligence
Credit Hours	3 hours	Prerequisite Co-requisite	Introduction to data science
Course type	<input type="checkbox"/> MANDATORY UNIVERSITY REQUIREMENTS <input type="checkbox"/> UNIVERSITY ELECTIVE REQUIREMENTS	<input type="checkbox"/> FACULTY MANDATORY REQUIREMENTS <input type="checkbox"/> Support course family requirements	<input checked="" type="checkbox"/> Mandatory requirements <input type="checkbox"/> Elective requirements
Teaching style	<input type="checkbox"/> Full online learning	<input type="checkbox"/> Blended learning	<input checked="" type="checkbox"/> Traditional learning
Teaching model	<input type="checkbox"/> 2 Synchronous: 1 asynchronous	<input type="checkbox"/> 2 face to face : 1 synchronous	<input checked="" type="checkbox"/> 3 Traditional

Faculty member and study divisions' information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
To be filled by the instructor					
Division number	Time	Place	Number of students	Teaching style	Approved model
To be filled by the instructor					

Brief description

This course is intended to provide an overview of different software and tools that assist data scientists in the data analysis process. These tools includes Spark, Hadoop, R, etc. Additionally, it gives an introduction to cloud computing, big data computing, and IoT computing.

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	1- R for Data Science. Hadley Wickham and Garrett Golemund, O'Reilly -2017. 2- Introduction to Computation and Programming Using Python, By John V. Guttag and Julie Sussman, 2016. 3- Introduction to Cloud Computing, M Praveen, 2020.			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. Data Analytics with Hadoop, Benjamin Bengfort and Jenny Kim, O'Reilly Media, 2016 2. Data Science Thinking The Next Scientific, Technological and Economic Revolution, Longbing Cao, Springer, 2018.			
Supporting websites				
The physical environment for teaching	<input checked="" type="checkbox"/> Class room	<input type="checkbox"/> labs	<input type="checkbox"/> Virtual educational platform	<input type="checkbox"/> Others
Supporting people with special needs	-----			
For technical support	-----			



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Course learning outcomes (S= Skills, C= Competences K= Knowledge,)

No.	Course learning outcomes	The associated program learning output code
Knowledge		
K1	Understand different types of computing for data science using different tools.	MK3
K2	Learn about different data science tools.	MK3
Skills		
S1	Applying Hadoop and Spark for big data computing.	MS3
S2	Applying R in statistical computing.	MS3
S3	Applying Weka for data science.	MS3
Competences		
C1	The ability to apply various cutting-edge tools for data science.	MC1

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
First exam	0	0	%20	0
Second / midterm exam	%30	%30	%20	30%
Participation / practical applications	0	0	10	30%
Asynchronous interactive activities	%30	%30	0	0
final exam	%40	%40	%50	40%

Note: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style*	Reference **
1	Introduction to Data Science	Lectures	Handouts
2	Weka Toolkit for Data Science	Lectures	Handouts
3	Weka Toolkit for Data Science	Lectures	Handouts
4	Case Study 1: Using Weka on a given dataset	Lectures	Handouts
5	Statistical Computing Systems – Introduction into R	Lectures	TB1
6	Statistical Computing using R	Lectures	TB1
7	Mid Exam Estimated + Revision	Lectures	TB2
8	Computing Platforms: IDEs, Notebooks, Google Colab, Jupyter	Lectures	TB2
9	Computation in Python	Lectures	TB2
10	Case Study 2: Computation in Python	Lectures	TB2
11	Introduction to Big Data Computing – Hadoop and Spark	Lectures	Handouts
12	Introduction into Cloud Computing	Lectures	TB3
13	AWS, Azure, and Google Cloud for Data Science	Lectures	Handouts
14	Introduction to Deep Learning Computing using GPUs, CUDA, Keras, and Tensorflow	Lectures	Handouts
15	Introduction to IOT Computing using Arduino Systems	Lectures	Handouts
16	Final Exam		



جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية العلوم وتكنولوجيا المعلومات
Faculty of Science and Information
Technology



"عراقة وجودة"

"Tradition and Quality"

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- * Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.
- ** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.