هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**Big Data Analytics**
Course Code:	**CS 472**
Program:	Computer Science/ Information Technology
Department:	Computer Science
College:	College of Computer and Information Sciences
Institution:	Majmaah University

Table of Contents

A. Course Identification

1. Credit hours:	3(3,1,0)
2. Course type	
a.	University ☐ College ☐ Department ☒ Others ☐
b.	Required ☐ Elective ☒
3. Level/year at which this course is offered:	Track
4. Pre-requisites for this course (if any)**:**	STAT 102
5. Co-requisites for this course (if any)**:**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	44	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	30
2	**Laboratory/Studio**	14
3	**Tutorial**	
4	**Others** (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed for students who have no previous knowledge of data analytics but wish to acquire these skills in a short period of time. These students will learn how to analyze large data sets and identify patterns that will improve any company's and organization decision-making process.

2. Course Main Objective

1. To understand the basics of big data analytics
2. To understand the data sampling, statistical analysis, visual data exploration
3. To apply predictive analytics techniques for real time problems
4. To perform descriptive and social analytics
5. To use big data tools and techniques

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	CLO1: To understand the basics of big data analytics	K1
1.2	CLO2: To understand the data sampling, statistical analysis, visual data exploration	K1
1.3		
1...		
2	**Skills :**	
2.1	CLO3: To apply predictive analytics techniques for real time problems	S2
2.2	CLO4: To perform descriptive and social analytics	S2
2.3	CLO5: To use big data tools and techniques	S2
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Big Data and Analytics Example Applications, Analytics Process Model, Analytical Model Requirements	3
2	Data Collection, Sampling and Preprocessing, Types of Data Sources, Sampling, Types of Data Elements	4
3	Visual Data Exploration and Exploratory, Statistical Analysis, Missing Values, Outlier Detection and Treatment, Standardizing Data, Categorization	5
4	Predictive Analytics-Linear Regression, Logistic Regression, Decision Trees	6
5	Neural Networks, Support Vector Machines	6
6	Ensemble Methods, Multiclass Classification Techniques, Evaluating Predictive Models	6
7	Social Network Analytics, Social Network Definitions, Social Network Metrics, Social Network Learning	5
8	Web Analytics, Social Media Analytics	5
9	Big Data Tools and Techniques, Understanding Big Data Storage.	4
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	CLO1: To understand the basics of big data analytics	Classroom Teaching	Mid Exam, Final Exam
1.2	CLO2: To understand the data sampling, statistical analysis, visual data exploration	Classroom Teaching	Mid Exam, Final Exam
…			
2.0	**Skills**		
2.1	CLO3: To apply predictive analytics techniques for real time problems	Classroom Teaching and Lab Exercises	Lab Based Assignments, Mid Exam, Final Exam
2.2	CLO4: To perform descriptive and social analytics	Classroom Teaching and Lab Exercises	Lab Based Assignments, Mid Exam, Final Exam
2.3	CLO5: To use big data tools and techniques	Classroom Teaching and Lab Exercises	Lab Based Assignments
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 2	5%
2	Assignment 1	Week 3	5%
3	Lab Exercise	Week 5	5%
4	Lab Exercise	Week 6	5%
5	Midterm Exam	Week 7	20%
6	Assignment 2	Week 7	5%
7	Quiz 2	Week 8	5%
8	Assignment 3	Week 9	5%
9	Lab Exam	Week 11	5%
10	Final Exam	Week 12	40%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Students can meet the faculty during advising hours or whenever the faculty is in the office.

Office Hours: 4 Hours/Week

Students also can email the faculty anytime during the weekdays

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Analytics in a Big Data World, Wiley 2014, Bart Baesens
Essential References Materials	
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom and laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show and Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Python

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Final Exam Evaluation	Peers	Verification of Marks
Course Report Verification	Quality Coordinator	Check List

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	