



Course Specification

DIPLOMA

Course Title: **Special Topics in Data Analytics**

Course Code: **APDA3214**

Program: **Diploma in Data Analytics**

Department: **Diploma Department**

College: **The Applied college**

Institution: **Umm Al-Qura University**

Version: **1**

Last Revision Date: **05 May 2025**



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content.....	4
D. Students Assessment Activities	5
E. Learning Resources and Facilities.....	5
F. Assessment of Course Quality	5
G. Specification Approval	6





A. General information about the course:

1. Course Identification

1. Credit hours: (3)

2. Course type

A. ☐ University ☐ College ☐ Department ☒ Track ☐ Others
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (level 3/2nd year)

4. Course General Description:

Students will learn about emerging technologies and trends in Data Analytics. This course is divided into several modules. Each module represents a specialized body of knowledge focusing on the technical aspects of data analytics. Students will also get a chance to research state-of-the-art Data Analytics in an industry of their choice. This course will provide students the required breadth to jumpstart their career in the Data Analytics field.

5. Pre-requirements for this course (if any):

None

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

Data Analytics is a developing subfield of data science. The main aim of this course is to present new developments in this area, encompassing advanced computational methods, the most recent technological advancements linked to data analytics.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		



3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Understand and utilize sophisticated computational techniques, such as machine learning algorithms and statistical assessments, to analyse complex datasets.	K1	Lectures covering foundation concepts relating to the field of data analytics>	Online quizzes. Written exams (midterm and final) Group project
1.2	Recognize and assess the influence of recent tech developments in data Analytics, including AI, big data tools, and data management frameworks.	K2	Audio visual presentation including some scientific movies for special topics in Data Analytics.	
1.3	Examine and discuss about new trends in data Analytics, addressing ethical considerations, data privacy issues, and the influence of data on decision-making procedures.	K2	Flipped classroom where issues relating to Data Analytics will be discussed and explored.	
1.4	Utilize ideas from multiple fields, including statistics, computer science, and specialized knowledge	K1	Case study. The course will make effective use of case	

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	, to improve data analytics applications.		studies to further enhance the students understanding of presented concepts. Reading (Research Papers, Book Chapters). Debriefing: Usually conducted at the conclusion of a lesson, debriefing allows students to condense and coalesce their knowledge and information as a group or whole class.	
2.0	Skills			
2.1	Expertise in evaluating and understanding complex data through sophisticated statistical methods .	S1	Reading around the data analytics topics, including core materials, materials introduced via lectures and the module website, and any relevant magazine and journal articles;	Group project. Written exams (midterm and final).
2.2	Capability to apply and assess machine learning algorithms for predictive purposes.	S1, S4		
2.3	Robust analytical and critical reasoning abilities to tackle practical issues through data-driven methods.	S2		
3.0	Values, Autonomy, and Responsibility			
3.1	Demonstrate ethical responsibility in data collection, analysis, and usage, ensuring	V2	Case studies, ethical debates, and guided reflections	Reflection papers, case





Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	integrity and compliance with data governance standards			analysis, and group project
3.2	Collaborate effectively within teams, showing leadership and accountability in addressing data analytics tasks	V3	Group-based activities, peer evaluation, collaborative labs	Group project evaluations, peer feedback, and self-assessment
3.3	Show initiative and autonomy in exploring new tools, frameworks, or methods related to data analytics beyond the taught curriculum	V3	self-directed learning tasks, research assignments, mentoring sessions	Research reports, presentations, and participation tracking

C. Course Content

No	List of Topics	Contact Hours
1.	Quantitative methods for data analysis	3
2.	Exploratory data analysis	3
3.	Data analysis on the cloud or at the edge	3
4.	Large language models based data analytics	3
5.	Graph data analytics	3
6.	Health informatics	6
7.	Trends of data analytics applications for Business	6
8.	Trends of data analytics applications for Sports	6
9.	Trends of data analytics applications for Tourism	6
10.	Trends of data analytics applications for Hajj and Umrah	6
Total		45



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	4,11	20%
2.	Midterm exam	8	20%
3.	Group project	15	20%
4.	Final Exam	16-17	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Required Textbooks	Data Analysis for Business, Economics, and Policy', by Gábor Békés and Gábor Kézdi, (2021).
Essential References	Data Analytics: Become A Master In Data Analytics, by Richard Dorsey (2017).
Supportive References	Online courses on data analytics (Coursera)
Electronic Materials	
Other Learning Materials	Select relevant textbook relevant to the chosen topic from department's library.

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lecture room with: * at least 30 seats * A data show projector connected to a PC preferably with Internet connection * sliding board
Technology equipment (projector, smart board, software)	
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect



Assessment Areas/Issues	Assessor	Assessment Methods
		Course survey and students' feedback.
Effectiveness of Students	Faculty Members, Peer Reviewers	Direct Report on the satisfaction of exam standards.
Quality of learning resources	Faculty Member, Course Coordinators	Direct Learning resources evaluation survey.
The extent to which CLOs have been achieved	Faculty Members, Program Leaders	Direct Course reports.
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Umm Al-Qura University Council
REFERENCE NO.	851281214463/193664
DATE	1447/01/20

