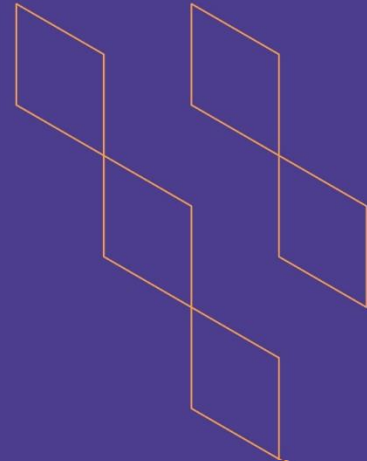




T-104
2022

Course Specification



Course Title: Data Science Fundamentals
Course Code: IS1754
Program: Computer Information System
Department: Computer Information System
College: Computer Science & Information Technology
Institution: Al-Baha University
Version: T104-V2
Last Revision Date: May 25, 2023



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A. General information about the course:

Course Identification

1. Credit hours: 3 Credit Hours (3, 0, 0) (Lecture, Lab, Tutorial)
(3 Contact Hours)

2. Course type

a. University College Department Track Others

b. Required Elective

3. Level/year at which this course is offered: 11th level / 4th year

4. Course general Description

This course is designed to offer an overview of data science and its various features. The course starts by introducing the basics of data science and NoSQL databases, followed by Data Analytics, Machine Learning, and Text Mining. The technical aspects related to these topics, such as algorithms and models, will be covered in detail. The course will also explore the platforms used for data science, including tools and techniques for data visualization. Additionally, students will learn how to acquire, store, and analyze data, enabling them to apply data science techniques in practical scenarios.

5. Pre-requirements for this course (if any): IS1503: Data and Information Management

6. Co- requirements for this course (if any): None

7. Course Main Objective(s)

The main objectives of this course include:

- Introducing the fundamentals of data science and NoSQL databases
- Exploring the concepts of data analytics, machine learning, and text mining
- Apply different platforms for data science.
- Developing skills in data visualization
- Identifying real-world examples of data science applications.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	30	100%
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	





Total	30
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B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Introduce the fundamentals of data science and NoSQL databases	K1	- Lectures	Direct Assessment Tool Midterm Indirect Assessment Tool Course Exit Survey
1.2	Explore the concepts Data Analytics, Machine Learning, and Text Mining.	K2	- Lectures	Direct Assessment Tool Midterm Final Exam Indirect Assessment Tool Course Exit Survey
2.0	Skills			
2.1	Apply different platforms for data science.	S2	- Lectures - Class work - Self learning	Direct Assessment Tool Quiz Final Exam Indirect Assessment Tool Course Exit Survey
2.2	Develop skills in data visualization	S5	- Lectures - Class work - Self learning - Assignment	Direct Assessment Tool Quiz Homework Indirect Assessment Tool Course Exit Survey
2.3	Identify real-world examples of data science applications.	S5	- Lectures	Direct Assessment Tool Quiz Final Exam Indirect Assessment Tool Course Exit Survey
3.0	Values, autonomy, and responsibility			
3.1	Interact working independently and collaboratively.	V1	- Assignments	Direct Assessment Tool Homework Indirect Assessment Tool Course Exit Survey



C. Course Content

No	List of Topics	Contact Hours
1	Importance of Data Science	3
2	NoSQL for Data Science	3
3	Data Analytics	3
4	Machine Learning	6
5	Text Mining	3
6	Platforms for Data Science	6
7	Data Presentation	3
8	Application of Data Science	3
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment	10	10%
2.	Midterm Exam	6	20%
3.	Quiz	8	10%
4.	Final Exam	12	60%

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

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ul style="list-style-type: none"> Wagh, S.J., Bhende, M.S. and Thakare, A.D., 2021. Fundamentals of Data Science. CRC Press. McKinney, W., 2022. Python for Data Analysis. O'Reilly Media, Inc.
Supportive References	<ul style="list-style-type: none"> Burns, S., 2019. Fundamentals of Data Science: Take the First Step to Become a Data Scientist. Samuel Burns.
Electronic Materials	<ul style="list-style-type: none"> W3school. Python Tutorial [ONLINE] Available at: https://www.w3schools.com/python/ Anon, 2020. Anaconda Software Distribution, Anaconda Inc. Available at: https://docs.anaconda.com/
Other Learning Materials	<ul style="list-style-type: none"> Saudi Digital Library (SDL). Rafid System (https://lms.bu.edu.sa/).





2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A classroom or lecture hall with whiteboard for 25 students.
Technology equipment (projector, smart board, software)	<ul style="list-style-type: none"> • A digital image projection system with connection to desktop computer and laptop computer. • High speed Internet connection. • An instructor computer station.
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> • Students • Faculty • Course Coordinator 	<ul style="list-style-type: none"> • Surveys (indirect). • Direct feedback from students. <p>Comprehensive Course report (where we can find information about teaching difficulties and action plan, ...)</p>
Effectiveness of students assessment	<ul style="list-style-type: none"> • Students • Faculty • Exam Evaluation Committee • Course Coordinator 	<ul style="list-style-type: none"> • Surveys (indirect). • Direct feedback from students. • Exam evaluation by the Exam Evaluation Committee (indirect)
Quality of learning resources	<ul style="list-style-type: none"> • Students • Faculty • Course Coordinator 	<ul style="list-style-type: none"> • Surveys (indirect) • Comprehensive Course report (where we can find information about difficulties and challenges about learning resources as well as consequences and action plan, ...)
The extent to which CLOs have been achieved	<ul style="list-style-type: none"> • Faculty • Program Leader • Course Coordinator 	<ul style="list-style-type: none"> • Student Results (direct) <p>Comprehensive Course report (where we can find the CLO assessment results)</p>
Other	None	None

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)





G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

