

Data Mining & Business Intelligence (IT647)
Selected Topics In Data Science (IT688)
Information Technology Department
College Of Computer
Qassim University

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Course Description

- This course provides students with advanced knowledge and skills in data mining, data warehousing, and business intelligence.
- It covers key methods for extracting, processing, and analyzing large datasets to support knowledge discovery and strategic decision-making.
- Students will explore advanced concepts in classification, clustering , frequent pattern mining, and data cube modeling, alongside business intelligence frameworks such as ETL processes and reporting systems.
- The course emphasizes practical applications through case studies, research projects, and the use of advanced tools to address real-world business and IT challenges.

Course Content

No	List of Topics	Contact Hours
1.	Introduction to Data Mining	3
2.	Data Preprocessing	3
3.	Mining Frequent Patterns, Associations, and Correlations	6
4.	Classification: Basic Concepts	4.5
5.	Classification: Advanced Methods	6
6.	Cluster Analysis: Basic Concepts and Methods	3
7.	Advanced Cluster Analysis	4.5
8.	Data Warehousing: Concepts and Design	3
9.	Online Analytical Processing and ETL	3
10.	Data Cube: A Multidimensional Data Model	3
11.	Business Intelligence: Basic Concepts	3
12.	Business Intelligence Reporting and Analysis	3
Total		45

Course Assessment

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	In class Activities and Assignment	Throughout	10%
2.	Midterm exam	11	20%
3.	Research Project & Presentation	15	20%
4.	Final Exam	Final Exams Period	50%
...	Final		100%

Course Resources

Essential References	<p>Han, J., Kamber, M., & Pei, J. (2011). Data Mining: Concepts and Techniques. Morgan Kaufmann, ISBN: 978–0123814791.</p>
Supportive References	<p>Shmueli, G., Patel, N. R., & Bruce, P. C. (2016). Business Intelligence and Data Mining. Business Expert Press. ISBN: 978–1631571206.</p>
Electronic Materials	<p><u>Import.io Data Mining Resources</u></p>
Other Learning Materials	<p>Data Mining Tools: WEKA, RapidMiner.</p>

Data Mining

Data Mining is the application of specific algorithms
for extracting patterns from data.

AI Magazine Volume 17 Number 3 (1996) (© AAAI)

From Data Mining to Knowledge Discovery in Databases

Usama Fayyad, Gregory Piatetsky-Shapiro, and Padhraic Smyth

Business Intelligence

Business Intelligence (BI) is an umbrella term that includes the **applications**, **infrastructures** and **tools**, and best practices that enable **access to** and **analysis of information** to improve and optimize decisions and performance .



Projects & Research Paper

- Number of students/group: 1-3 students.
- The project is worth: 20 marks
- Deadline: **Sunday week 14 -April 23 - 11:59 p.m.**

Project :

- You are required to prepare a research project (the use of data mining in Business Intelligence).
- You have to choose the project idea and work in it as a group.

Projects & Research Paper

- **Idea of the project**
- **Problem definition**
- **Literature review**
- **Methodology & Implementation (data collection, cleaning, etc)**
- **Results & Analysis**
- **Presentation**
- **Project Discussion**

Contac Me At

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- Black board

Thank you

