Faculty of Computers & Information Technology

Data Mining

Information :

Course Code :	IS443	**Level**	**:**	Undergraduate	**Course Hours :**	3.00- Hours

Department :	Department of Information Systems

Instructor Information :

Title	Name	Office hours
Professor	AMIRA MOHAMMED IBRAHIM IDREES	
Professor	AMIRA MOHAMMED IBRAHIM IDREES	
Teaching Assistant	Maha Farghaly Ali Ahmed	
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Area Of Study :

Discuss and apply the basic concepts of 'Data Pre-processing & Summary Statistics'.
Discuss and apply the concepts of 'Frequent Item set Generation, Associations and Correlations measures'.
Discuss and apply the concepts of 'Classification, Prediction, and Clustering Algorithms.)
Build on the programming and problem-solving skills developed in previous subjects studied by the student, to achieve an understanding of the development of Classification, Prediction, and Clustering applications.
Use Effectively Communication Skills

Description :

Knowledge discovery in databases, Data mining process, Data cleaning and preparation, Mining association rules, Classification, Prediction, Clustering, Web mining, Applications of data mining, Mining advanced databases. The course focuses on two subjects the essential data mining and knowledge representation techniques used to extract intelligence from data and expense and common problems from the fields of finance marketing, and operations/ service that demonstrate the use of the various techniques and the tradeoffs involved in choosing form among them. The area explicitly covered in the course is OLAP, Neural networks, Genetic algorithms, rule induction, fuzzy logic, Case- based reasoning, and rule- bases systems. Recent correlated software packages should be used thrush labs.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Explain the basic concepts of Data Mining
2 -	Illustrate the concept of Data Pre-processing & Summary Statistics
3 -	Discuss and apply the concepts and techniques of Frequent Item set Generation, Associations and Correlations measures
4 -	Discuss and apply the concepts and techniques of Classification, Prediction, and Clustering Algorithms.

b.Intellectual Skills: :

1 -	Use Statistical measures.
2 -	Apply the Graphic Displays of Data Summaries

3 -	Handle data quality problems Noisy and outliers Data, and missing values
4 -	Apply Data Transformation and Reduction
5 -	Measure data similarity and dissimilarity
6 -	Mine Frequent Patterns, Associations, and Correlations
7 -	Illustrate applications of data mining in real life

c.Professional and Practical Skills: :

1 -	Predict useful information from given data
2 -	Use data mining techniques in real data mining life applications
3 -	Find the impact of data analysis techniques in decision making process.
4 -	Implement different Classification/Prediction/Clustering techniques

d.General and Transferable Skills: :

| 1 - | Work in a team effectively and efficiently considering time and stress management |
| 2 - | Apply communication skills and techniques in presentations and report writing for range of audiences using various methods and tools |

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to Data Mining & Basic concepts	4	2	2
Introduction to Data Mining & Basic concepts	4	2	2
Data Pre-processing	4	2	2
Summary Statistics	4	2	2
Mining Frequent Patterns, Associations, and Correlations	4	2	2
Mining Frequent Patterns, Associations, and Correlations	4	2	2
Classification	4	2	2
Classification	4	2	2
Mid-Term Exam	2		
Classification	4	2	2
Classification	4	2	2
Prediction	4	2	2
Clustering	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :

| Interactive Lectures including discussion |
| Practical Lab Sessions |
| Self-Study (Project / Reading Materials / Online Material / Presentations) |
| Case Studies |
| Problem Solving |

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	5.00	4	
Final Exam	40.00	14	
Midterm Exam (s)	20.00	9	
Others(Participation)	5.00		
Presentations	5.00	12	
Quizzes	10.00	5	
Team Work Projects	15.00	12	

Course Notes :

An Electronic form of the Course Notes and all the slides of the Lectures is available on the Students Learning Management System (Moodle)

Recommended books :

Introduction to Data Mining, Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Pearson, ISBN-13: 978-0321321367, ISBN-10: 0321321367, 2014

Web Sites :

www.ekb.eg

http://www.fue.edu.eg