



MIS 419

Knowledge Management and Data Mining

2nd Semester 2015

Course Syllabus

Instructor	Dr. Monira Essa Aloud
Office	3S150 Building #3 2 nd floor
Email	mealoud@ksu.edu.sa
Website	http://fac.ksu.edu.sa/mealoud/biocv
KSU credit	3 hours
Lecture timetable	3 lectures a week (Sunday, Tuesday, Thursday 10:00 – 10:50 am)
Office Hours	Sunday, Tuesday, Thursday: 11:00 am – 1:00 pm
Communication practice	I will use KSU email and Blackboard systems as the primary means of communication. It is the student responsibility to check Blackboard (and their email) at least once a day during the week (Sunday - Thursday). Therefore, student will be expected to be aware of any announcements within 24 hours of the time the message was sent.

Course Information

Course Title	Knowledge Management and Data Mining
Course Code	MIS 419
Course Description	The course aims to introduce principles and concepts of Knowledge Management (KM) along with the challenges, solutions, technologies and application systems of KM. This course approaches KM from several perspectives: it covers electrical engineering, artificial intelligence, information systems, and business. Furthermore, the course aims to introduce Data Mining (DM) techniques. DM is about extracting useful patterns from big data aiming to find actionable knowledge in the raw of information. The rapid growth of data storage and the computing power available to analyze the data have creates valuable opportunities for data mining in business.
Prerequisite(s)	MIS 350
Course Type	Elective



Course Objectives

- To understand the fundamental concepts in the study of knowledge and its creation, acquisition, representation, dissemination, use and re-use, and management.
- To appreciate the role and use of knowledge in organizations and institutions, and the typical obstacles that KM aims to overcome.
- To know the core concepts, methods, techniques, and tools for computer support of KM.
- To critically evaluate current trends of knowledge management in business and industry.
- To understand the fundamental concepts of data mining.
- To develop an understanding of the strengths and limitations of popular data mining techniques.
- To be able to identify promising business applications of data mining.
- To identify data mining techniques appropriate for particular classes of problem and apply them accordingly.
- To undertake a comparative evaluation of several data mining procedures.

Recommended Background

For this course it is highly recommended that student has basic computing skills including some programming experience in a typical programming language, such as Java or Visual Basic. However, the course does not involve any required programming. In addition, knowledge of basic concepts of statistics, databases and artificial intelligence are required.

Required Textbook and Readings

- Irma Becerra-Fernandez, Avelino Gonzalez, Rajiv Sabherwal (2004). Knowledge Management Challenges, Solutions, and Technologies (edition with accompanying CD). Prentice Hall. ISBN: 0-13-109931-0.
- Pang-Ning Tan, Michael Steinbach, Vipin Kumar (2005). Introduction to Data Mining. Addison-Wesley. ISBN-10: 0321321367.

Recommended Textbooks and Reference Material

- Awad, E. & Ghaziri, H. (2004). Knowledge Management. Prentice Hall. ISBN: 0-13-034820-1.
- Madanmohan Rao (2004). Knowledge Management Tools and Techniques: Practitioners and Experts Evaluate KM Solutions. Butterworth-Heinemann. ISBN: 0750678186.
- Han, J. & Kamber, M. (2006). Data Mining: Concepts and Techniques (2nd Edition). Morgan Kaufmann. ISBN: 1558609016.
- Tiwana, A. (2002). The Knowledge Management Toolkit: Orchestrating IT, Strategy, and Knowledge Platforms (2nd Edition). Prentice Hall. ISBN: 013009224X.
- Shmueli, G., Patel, N. & Bruce, P. (2010). Data Mining for Business Intelligence: Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner (2nd Edition). Wiley. ISBN: 0470526823.



Web Recourses

- Official website of the course on the learning management system: LMS.ksu.edu.sa. It is highly recommended that students print the required material for each class and have them available. There are a number of research papers in Data Mining area that will help understand the course contents. The references are available on LMS.ksu.edu.sa.
- Data Mining Community Top [Resource](#).

Source Codes, Tools and Software of Data Mining

- [XLMiner](#) Analysis ToolPak App.
- [FIMI](#) workshops: Datasets and source codes for frequent item set mining implementations.
- Frequent item set mining algorithm implementations by Bart [Goethal](#).
- Repository of implementations of UIUC data mining research package: [IliMine](#).
- [Weka](#): Data Mining with Open Source Machine Learning Software in Java.

Teaching and Student Engagement Strategies used in the Course

- Explicit instruction.
- Lecture and facilitation for student learning (student-centered).
- Student engagement through the following learning activities:
 - Reading textbook pages and summarizing the main ideas.
 - Self-Learning and research assignment.
 - Analyses of business cases.
 - Brainstorming session.
 - Direct question and response.
 - Group-problem solving.
 - Presentation and comparing multiple solutions.
 - Cooperative learning.
 - Peer student interaction.
 - Team online collaboration tools: student should use online collaboration tools in order to practice group communications to carry out the weekly assignments. The activities and minutes of meetings have to be documented in the assignment report.
 - Group discussion board on MIS 419 LMS.ksu.edu.sa: student should use the Blackboard discussion board as the main place to ask questions you have about the course. However, please feel free to make full use of my office hours in the university. However, if you have a question, someone else may have a similar one, and every student will possibly benefit from the answers being available on the course Blackboard system. Besides, please make an effort to answer your classmates' questions. In grading your participation in the course assignments, I will include your contributions to the discussion board. Nevertheless, you will not be penalized for wrong answers/clarifications during your participation on the discussion board (or even in class).

Grading and Timetable

- Course work (60%)
 - Midterm exam I – 15% (1 hour) Sunday 08/03/2015 - 10:00 am
 - Midterm exam II – 10% (1 hour) Sunday 12/04/2015 - 10:00 am
 - Project - 10% Sunday 03/05/2015 - 10:00 am
 - Quizzes – 5%
 - Weekly Assignments (each 2%) - 20%
- Final exam (40%) (2 hours) Sunday 17/05/2015 - 08:00 am



Week	Topics to be Covered
Week 1	Course Introduction - Ch1: Introducing Knowledge Management
Weeks 2	Ch2: The Nature of knowledge Ch3: Knowledge Management Foundations: Infrastructure Mechanisms, and Technology
Week 3	Ch4: Knowledge Management Solutions: Process and Systems Ch5: Impact of KM on Employee Adaptability
Weeks 4	Ch7: Knowledge Capture Systems
Weeks 5	Ch8: Knowledge Sharing Systems
Weeks 6	Ch9: Knowledge Discovery Systems Ch10: Emergent Knowledge Management Practices
Week 7	Midterm (I) Ch1: Introduction to Data Mining
Week 8	Ch2: Data - Ch3: Exploring Data
Week 9	Ch4: Classification: Basic Concepts, Decision Trees, and Model Evaluation
Week 10	Ch4: Classification: Basic Concepts, Decision Trees, and Model Evaluation
Week 11	Midterm (II) Ch6: Association Analysis: Basic Concepts and Algorithms
Week 12	Ch8: Association Analysis: Basic Concepts and Algorithms
Week 13	Ch8: Cluster Analysis: Basic Concepts and Algorithms
Week 14	Application examples of pattern discovery
Week 15	Project submission and presentations Attending 2014 Symposium on Data Mining and Applications (SDMA2014)

Table 1 MIS 419 Weekly Schedule



General Policies

1. **ASSIGNMENTS:** assignments administered throughout the semester will announced on the Blackboard. Late submission will not be accepted. System crashes within 48 hours of homework due date are not valid excuses for late homework. Only print-outs of assignments/exercises will be accepted.
2. **TESTS:** Two midterm exams, which focus primarily on materials covered in class and from the textbook, will be administered during the semester. Students are strongly encouraged to visit the Companion Website for additional coverage of the materials presented in the textbook. In order to perform well on the tests, students must be familiar with questions listed in the Review Questions section. The exams may contain multiple choice, short answer, and problem-based questions. You will be expected to synthesize responses from lectures, cases, and terminology discussed in class for the exam. Makeup tests and exam **will not be given** except with prior notification and under extenuating and unavoidable circumstances. Student must submit original papers that are stamped and accepted from head of Department. You should submit your excuse no more than one week after the exam. If your excuse is accepted, you will be allowed to enter a makeup exam.
3. **FINAL EXAM:** A comprehensive exam will be given during the KSU University exam schedule. The format of the final exam is relatively similar to the format for the midterm exams.
4. **ATTENDANCE:** The attendance policy follows the guidelines stated in the KSU Catalogue (<http://www.KSU.edu.sa/>). Students must assume full responsibility for any loss incurred because of absence, **whether excused or unexcused**. You are not allowed to attend the final exam if you absent more than 13 hours and you will be considered as denied, a first probation will be issued if you reach 5 hours of absence and the second probation will be issued if you reach 9 hours of absence.
5. **KSU HONOR CODE:** All students must obey the KSU Honor Code diligently. The Honor Code is based on the need for trust in an academic community. KSU's Honor Code is a system developed by and maintained for the welfare of its students, and all students should make sure that they read and understand the provisions outlined in the Student Handbook (read <http://www.ksu.edu.sa>). All work completed for this course will be considered pledged. **CHEATING IS ABSOLUTELY NOT TOLERATED AT KSU UNIVERSITY.** Plagiarism is a violation of the Honor code. All papers submitted in this course are subject to evaluation using plagiarism detection software.
6. **ACADEMIC DISHONESTY POLICY:** Cheating in any form will not be tolerated in the College of Business. If the instructor determines that a student has cheated on an assignment, the grade of "F" may be assigned for the entire course. "Cheating" is the use of unauthorized resources and/or work of another including but not limited to homework, tests, papers, presentations and exams. Unless specifically instructed otherwise, students are to assume that all coursework is to be the work of the individual student alone. If a student is unsure as to whether collaboration is permitted, the professor should be contacted in advance of performing the work. If a faculty member penalizes a student in a course for an Honour Code violation, they should also bring formal charges against the student with the University Honour Board.
7. **LEARNING DISABILITIES:** Any student who feels that he may need accommodations based on the impact of a physical, psychological, medical, or learning disability should contact Students' Affair Office.
8. **INCLEMENT WEATHER POLICY:** In cases of inclement weather, commuter and campus based disabled students will be permitted to make decisions about whether or not to attend classes without penalty. If the University is open, it is expected that residence students will attend all classes being held that day. Cancelled classes will not be rescheduled since students should utilize the cancelled class period as computer lab time.