Tamkang University Academic Year 106, 2nd Semester Course Syllabus

Course Title	DATA MINING	Instructor	LIAO SHU-HSIEN
Course Class	TLQXM1A MASTER'S PROGRAM IN BUSINESS AND MANAGEMENT (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ Selective ◆ One Semester ◆ 3 Credits

Departmental Aim of Education

Ⅰ． Develop a business and management perspective for students.

Ⅱ． Train the professionals in the integrated fields of business and management.

Ⅲ． Cultivate the talents with both theory and practices in business and management.

Departmental core competences

A. Provide the basic knowledge of both theory and practices.

B. Enhance the practical training for the current trends.

C. Cultivate the ethics in business and management.

D. Obtain the ability of analyzing industrial and business problems.

Course Introduction	Data mining is not only an approach but also a methodology to investigate database as the problem domain of the big data. Thus, this course aims at several issues, including data and database, database model, big data, data mining functions, data mining approaches and the design of business intelligence architecture. In these regards, this course provides student a horizon to a big data analysis technology.

The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I.Objective Levels (select applicable ones) :
 (i) Cognitive Domain   : C1-Remembering,   C2-Understanding,   C3-Applying,
                           C4-Analyzing,   C5-Evaluating,   C6-Creating
 (ii) Psychomotor Domain : P1-Imitation,   P2-Mechanism,   P3-Independent Operation,
                           P4-Linked Operation, P5-Automation,   P6-Origination
 (iii) Affective Domain : A1-Receiving,   A2-Responding,   A3-Valuing,
                           A4-Organizing,   A5-Charaterizing,   A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :
 (i) Determine the objective level(s) in any one of the three learning domains (cognitive,
     psychomotor, and affective) corresponding to the teaching objective. Each objective should
     correspond to the objective level(s) of ONLY ONE of the three domains.
 (ii) If more than one objective levels are applicable for each learning domain, select the
     highest one only. (For example, if the objective levels for Cognitive Domain include
     C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to
     Psychomotor Domain and Affective Domain.)
 (iii) Determine the Departmental core competences that correspond to each teaching objective.
     Each objective may correspond to one or more Departmental core competences at a time.
     (For example, if one objective corresponds to three Departmental core competences: A,AD,
     and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Departmental core competences
1	1.Student learns how to see and organize data and database. 2.Student learns how to implement data mining approaches on the database. 3.Student learns the concept of business intelligence.	C3	ABD

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	1.Student learns how to see and organize data and database. 2.Student learns how to implement data mining approaches on the database. 3.Student learns the concept of business intelligence.	Lecture, Discussion, Problem solving	Report, Participation

This course has been designed to cultivate the following essential qualities in TKU students	
Essential Qualities of TKU Students	Description
◆ A global perspective	Helping students develop a broader perspective from which to understand international affairs and global development.
◆ Information literacy	Becoming adept at using information technology and learning the proper way to process information.
◆ A vision for the future	Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision.
◇ Moral integrity	Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems.
◆ Independent thinking	Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically.
◇ A cheerful attitude and healthy lifestyle	Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life.
◆ A spirit of teamwork and dedication	Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems.
◇ A sense of aesthetic appreciation	Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process.

Course Schedule

Week	Date	Subject/Topics	Note
1	107/02/26 ~ 107/03/04	2/28 National holiday	Day off
2	107/03/05 ~ 107/03/11	3/7 Basic concept of business intelligence	
3	107/03/12 ~ 107/03/18	3/14 Relational database development – ER model	
4	107/03/19 ~ 107/03/25	3/21 Relational database development – enhanced ER model	
5	107/03/26 ~ 107/04/01	3/28 SPSS Modeler - data mining tool introduction	
6	107/04/02 ~ 107/04/08	4/4 National holiday	Day off
7	107/04/09 ~ 107/04/15	4/11 Relational database development – Logical ER model	
8	107/04/16 ~ 107/04/22	4/18 Data warehousing	
9	107/04/23 ~ 107/04/29	4/25 Online analytical process – OLAP	
10	107/04/30 ~ 107/05/06	5/2 Midterm Exam Week	Report writting
11	107/05/07 ~ 107/05/13	5/9 What is a big data?	
12	107/05/14 ~ 107/05/20	5/16 Big data and data mining	

13	107/05/21~ 107/05/27	5/23 Data mining approaches	
14	107/05/28~ 107/06/03	5/30 Report presentation – session 1	
15	107/06/04~ 107/06/10	6/6 Report presentation – session 2	
16	107/06/11~ 107/06/17	6/13 Report presentation – session 3	
17	107/06/18~ 107/06/24	6/20 Report presentation – session 4	
18	107/06/25~ 107/07/01	6/27 Final Exam Week	Submit report

Requirement	1. Attend 2. Presentation skill and content 3. Final report
Teaching Facility	Computer, Projector
Textbook(s)	Mark Hall; Ian Witten; and Eibe Frank; Data Mining: Practical Machine Learning Tools and Techniques, third edition, (2013). Morgan Kaufmann Publishers (ISBN: 978-0-12-374856-0).
Reference(s)	
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 30.0 ％ ◆ Mark of Usual：10.0 ％ ◆ Midterm Exam： 30.0 ％ ◆ Final Exam： ％ ◆ Other〈presentation〉：30.0 ％
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**