



## **COURSE SYLLABUS**

Course: **ISYS 4293 Business Intelligence**

Prerequisite: WCOB 1033 with a grade of "C" or better

### **Course Description:**

Business Intelligence is the umbrella term to include all the efforts toward utilizing analysis of data to support business decision making. Based on this concept, this course includes three topical areas of data warehousing, knowledge management and data mining tools and techniques.

### **Value of the Course:**

For a variety of reasons—including the low cost of storage, technologies to capture data and ease of use of analytical tools—considerable effort is now being expended in most corporations to gain competitive advantage via business intelligence. Thus, an introduction to the topics included in business intelligence will be of great benefit to the student as most corporations will have one of more initiatives along the business intelligence venue.

### **Course Goals:**

The primary course goals are for the student to be able to do the following when they have completed the course.

- Be able to explain what the term Business Intelligence encompasses and how it fits into the business—also its potential and limitations
- Be able to create data warehouses and data marts using DWE and SQL Server 5.0
- Be able to create OLAP cubes from the data warehouses
- Be able to write OLAP queries for cubes from various databases
- Be able to adequately determine correct data mining tools to apply to data
- Be able to run data mining (DM) projects; analyze and interpret the results—and make management recommendations based on their findings

More specific, measurable objectives are included for major topics and DM techniques.

### **Text:**

Daniel T. Larose, *Discovering Knowledge in Data*, Wiley, 2005. ISBN: 0-471-66657-2

### **Class Procedures:**

The class will be a combination of lecture, demonstration, in class projects, student presentations and discussions. Blackboard will be used.

**Attendance Policy:**

Students are expected to attend all classes—exceptions will be made on a case-by-case basis. For most students, class attendance is necessary for learning the course material.

**Inclement Weather Policy:**

My inclement weather policy is that if the University is officially open, then I will attempt to hold class. You will be notified, if possible, via blackboard and/or e-mail if for some reason I cannot be there and the University is officially open.

**Examinations:**

To be discussed the first day of class.

**Grades (*Grades are a measure of performance, not effort*)**

Grades are awarded in general, on a percentage basis, as follows:

A --above 90	<u>Planned Points</u>	
B -- 80-89	3 Exams—100 pts/each	300
C --70-79	Assignments	100
D -- 60-69	Major project & Presentation	100
F -- below 60		----
	Total	500

**Academic Honesty:**

You are referred to the UA’s web site, <http://www.uark.edu:80/depts/aedhpa/achonest.html>, for a full description of the Academic Honesty Policy and corresponding procedures. Cheating will not be tolerated and I will ask for the full sanctions against those students who cheat. Although it is appropriate for students to help other students in the learning process, all projects (unless otherwise stated) are individual projects and it is very unlikely that two projects will too closely match if done on an individual basis.

**Expectations:**

I fully expect all the students in the class to do well and will do everything I can to ensure your success. However, this requires some degree of dedication and time on your part.

**Disclaimer:**

For many reasons--such as unscheduled opportunities for classroom guest speakers, etc--there may be deviations from the course schedule.

**Accommodations for Students with Disabilities**

Students who require special assistance or arrangements should contact the professor during the first week of class to discuss and arrange any instructional accommodations that may be necessary. Students who would like to serve as volunteer tutors, readers, or note takers for students needing special assistance are encouraged to contact the instructor during the first week of class.

## Tentative Schedule

*Note—Chapter 11 will be referenced at appropriate times during the course*

Date	Topics	Text Reference	Assignment
Jan 14	Course Overview—	In Class Activities	BI -- definitions
Jan 16	Introduction to Data Mining: <b>Due: BI -- definitions</b>	Chapter 1	DM article
Jan 21	Introduction to SAS 9.1/SAS EM 5.2 and SPSS Clementine 10.1 <b>Due: DM article</b>	Notes	Model building and data1
Jan 23	Data Preparation <b>Due: Model building &amp; data1</b>	Chapter 2	Model building and data2
Jan 28	Exploratory Data Analysis (EDA) <b>Due: Model building &amp; data2</b>	Chapter 3	EDA1
Jan 30	Exploratory Data Analysis (EDA) <b>Due: EDA1</b>	Chapter 3	
Feb 4	Statistical Approaches to Estimation & Prediction <b>Due: EDA 2</b>	Chapter 4	Regression models
Feb 6	DM – Directed or Supervised Models: Decision Trees <b>Due: Regression models</b>	Chapter 6	Decision Trees1
Feb 11	DM – Directed or Supervised Models: Decision Trees <b>Due: Decision Trees1</b>	Chapter 6	Decision Trees2
Feb 13	DM -- Directed or Supervised Models: Neural Networks and Nearest Neighbor <b>Due: Decision Trees2</b>	Chapters 5 & 7	Neural Network, Nearest Neighbor Models1
Feb 18	DM – Directed or Supervised Models: Neural Networks and Nearest Neighbor & Log Regression Models <b>Due: NN, NN1</b>	Chapters 5 & 7 plus notes on Log Regression	Log Regression
Feb 20	Summary of Supervised DM methods -- evaluation <b>Due: NN, NN1</b>	Chapters 5 & 7 plus notes on Log Regression	
Feb 25	Examination I		
Feb 27	DM – Non-directed or unsupervised: Clustering <i>k</i> -means and Kohonen Networks	Chapters 8 & 9	Clustering1

Mar	4	DM – Non-directed or unsupervised: Clustering <i>k</i> -means and Kohonen Networks <b>Due: Clustering1</b>	Chapters 8 & 9	Clustering2
Mar	6	DM – Non-directed or unsupervised: Association (Affinity) Analysis <b>Due: Clustering2</b>	Chapter 10	Association1
Mar	11	DM – Non-directed or unsupervised: Association (Affinity) Analysis <b>Due: Association1</b>	Chapter 10	Association2
Mar	13	Summary of Non-directed or unsupervised DM <b>Due: Association2</b>	Chapter 10	Team DM Project
Mar	17-21	<b>Spring Break</b>		
Mar	25	DM: Genetic Algorithms	Notes	Genetic Algorithm Article
Mar	27	DM: Genetic Algorithm demo Teradata Warehouse Miner <b>Due: Article</b>		Teradata Warehouse Miner
Mar	31	Review <b>Due: TWM</b>		
Apr	2	Examination II		
Apr	7	Introduction to Data Warehousing	Notes & handouts	DB2 Tutorial
Apr	9	Data Warehousing (cont)	Notes & handouts	DB2 Tutorial
Apr	14	Data Warehousing (cont) <b>Due: DB2 Tutorial</b>	Notes & handouts	SQL Server
Apr	16	Data Warehousing (cont)	Notes & handouts	SQL Server (DM)
Apr	21	Knowledge Management <b>Due: SQL Server DM</b>	Notes & handouts	SAP BW
Apr	23	Scorecards, dash boards	Notes & handouts	
Apr	28	Project Presentations		
May	2	<b>Dead Day</b>		
May	3	<b>Scheduled Final Exam Time : 7:30 – 9:30 am</b>		