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329-01-02 Data Mining

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INFO329/MKTG329

Data Mining

Spring 2011

Instructor: Dr. Greg Smith

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Office: 209 Smith Hall

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Office Hours: Monday 1:30 pm - 2:30 pm & 4:00 pm - 6:00 pm
Wednesday 1:30 pm - 2:30 pm
Other times by appointment

Course Site: blackboard.xu.edu

Classroom: Hailstones 15

Class times: M/W 2:30 pm - 3:45 pm (Section 1)
M 6:00 pm - 8:30 pm (Section 2)

In case of emergency class cancellation an email will be sent to advise of the situation and provide further information. In addition, a posting will be made on Blackboard.

Williams College of Business Mission:

"We educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition."

Class Text, Hardware, & Software:

«Required»

Olson, D. and Shi, Y., Introduction to Business Data Mining, McGraw-Hill, 2007.

ISBN10: 0072959711

ISBN13: 9780072959710

Applied Analytics Using SAS Enterprise Miner 6, SAS Institute, Cary, NC.

Individual readings to be presented in-class and on our class Blackboard site

Data Files:

This class will employ SAS Enterprise Miner Software. The software will be made available free via SAS OnDemand for Academics - Enterprise Miner 6. All data will be available on the SAS Cloud.

Course Description:

Students will receive an introduction to the basic theory, tools and techniques of data mining, including prediction, associations, clustering, and recommendation systems. The course will be delivered from two points of view: the technological view and the marketing management view. Students will use data mining tools when doing their team projects.

My Vision:

In the last decade we have seen an explosion in the quantity of data available to businesses. Transactional data from point-of-sale scanners are now routinely available; data from direct marketing is growing exponentially; and e-commerce and web-browsing data is everywhere. Obviously, there is going to be a strong interest in extracting value or knowledge from this data. My vision of this course is to present and discuss data mining technologies and their application to data sets in an effort to support tactical and strategic business decisions. However, the over-riding focus will be learning when and how to use the technologies.

Course Goals: Upon completion of this course, you should be able to:

- Understand popular data mining techniques, how to apply them, and when they are applicable
- Utilize a state-of-the-art commercial data mining package
- Apply popular data mining techniques to solve real-world problems

Course Policies:

- I will take attendance every class period. This will be used as a measure for the In-Class portion of your grade. Attendance is not mandatory, but **I WILL NOT COVER MISSED MATERIAL DURING OFFICE HOURS FOR THOSE WHO DO NOT ATTEND CLASS.** If you must miss for a legitimate reason, please let me know and we can arrange a time to discuss what is/was missed.
- Assignments are to be submitted on the due date. Late assignments will not be accepted unless prior arrangements have been made with the instructor. A score of 0 will be recorded for any assignment received beyond the due date. This is going to be strictly enforced.
- Grade tracking and averaging is the responsibility of the student. Blackboard will be kept up-to-date for your convenience.

Academic Honesty:

"All work submitted for academic evaluation must be the student's own. Certainly, the activities of other scholars will influence all students. However, the direct and unattributed use of another's efforts is prohibited as is the use of any work untruthfully submitted as one's own. The penalty for violation of this policy will be a zero for that assignment if it is a first offense. Subsequent violation will result in an **F for the course.**"

Exams:

There will be two exams and a final exam covering material from the textbooks, readings, assignments, and Enterprise Miner.

In-class (Out-of-class) work:

We will be performing a number of in-class and out-of-class assignments using SAS Enterprise Miner.

Course Project:

An individual project will be assigned mid-way through the term. A full description will be available at that time.

Class readings and Homework:

Published articles will be presented for reading, review, and in-class discussion. These articles will cover current trends and practices in "real-world" data mining. We will also have several homework assignments throughout the semester.

Grade Components:

Quiz 1	20%
Quiz 2	20%
Final Exam	25%
In-class work*	10%
Course project	15%
Class readings/HW	10%

Grade Distribution:

A	95-100%	C+	77-79%
A-	90-94%	C	73-76%
B+	87-89%	C-	70-72%
B	83-86%	D	60-69%
B-	80-82%	F	Below 60%

*Assignments in EM and participation

Class Schedule

(This is simply a guide and will change periodically. Check Blackboard for changes)

Week of:	Class Topics	Reading
1/10/11	Course Introduction Chapter 1 - Initial Description of Data Mining in Business Chapter 2 - Data Mining Process and Knowledge Discovery (Mon Evening)	pp 1-14 pp 19-31
1/17/11	No Monday Class (1/17/11) Chapter 2 - Data Mining Process and Knowledge Discovery (Wed After)	pp 19-31
1/24/11	Chapter 3 - Database Support for Data Mining Chapter 4 - Overview of Data Mining Techniques	pp 34-48 pp 53-70
1/31/11	An Introduction to Enterprise Miner (Chapters 1 and 2) & An Introduction to Data Mining Modeling	
2/7/11	Quiz 1 - Chapters 1,2,3,4 Chapter 5 - Cluster Analysis	pp 73-96
2/14/11	Chapter 5 - Cluster Analysis (finish) Enterprise Miner (Cluster)	pp 73-96
2/21/11	Chapter 11 - Market Basket Analysis <i>Enterprise Miner (MBA)</i>	pp 211-219
2/28/11	Chapter 8 - Decision Tree Algorithms <i>Enterprise Miner (DT)</i>	pp 135-160
3/7/11	Spring Break - No Class	
3/14/11	Chapter 6 - Regression Algorithms in Data Mining <i>Enterprise Miner (Reg)</i>	pp 99-119
3/21/11	Chapter 7 - Neural Networks in Data Mining <i>Enterprise Miner (NN)</i>	pp 122-131
3/28/11	Quiz 2 - Chapters 5,11,8,6,7 <i>Enterprise Miner (Model Evaluation)</i>	
4/4/11	Monday AM Class DOES NOT MEET , PM Class DOES MEET Chapter 10 - Business Data Mining Applications <i>Enterprise Miner (Model Evaluation)</i>	pp 187-208
4/11/11	Guest Speaker Special Topic	
4/18/11	Chapter 13 - Ethical Aspects of Data Mining <i>Enterprise Miner (Model Evaluation)</i>	pp 250-257
4/25/11	Monday AM Class DOES NOT MEET , PM Class DOES MEET <i>Enterprise Miner (Wrap-Up)</i>	
5/2/11	Final Exam - Chapters 10,13, Special Topics, & Enterprise Miner	