2014

680 Introduction to Data Mining for Managers

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INFO680/MKTG680
Introduction to Data Mining for Managers

Summer 2014

Instructor: Dr. Greg Smith  Email: smithg2@xavier.edu

Office: 209 Smith Hall  Phone: 745-3245
Fax: 745-3455

Office Hours: Monday 4:30 pm - 6:00 pm
Thursday 4:30 pm - 6:00 pm
Other times by appointment

Course Site: blackboard.xavier.edu

Classroom: Smith Hall G28

Class time: Monday & Wednesday 6:00 pm - 9:15 pm

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»


Individual Readings to be presented in-class and on our course CANVAS site.
**Data Files:**
This class will employ JMP Software. The software will be made available free via to all students on university computers and downloadable to personal machines. All data will be available on our Blackboard site.

**Course Description:**
This introductory course will familiarize students with popular data mining methods for extracting knowledge from data. Principles of data mining will be presented and discussed, but students will also acquire hands-on experience using state-of-the-art software to develop data mining solutions to real-world business problems. The course will be delivered from both a technological view and a marketing/management view. Topics and related methods discussed in the class include: data mining processes and knowledge discovery, database support to data mining, associations, classifications and prediction, clustering, recommendation systems and developing issues in data mining.

**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 overriding 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 at every class period. This is simply for my information and will only come into play if attendance is poor. In this class, if you miss, it will be extremely hard for you to catch-up because of the “learning-by-doing” emphasis.
- 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.
- Grade tracking and averaging is the responsibility of the student. Blackboard will be kept up-to-date for your convenience.
**WCB Learning Goals and Objectives**
This course reinforces the following MBA program learning goals:

- **Strategic Thinking and Leadership**
  - Ability to demonstrate the appropriate knowledge of data mining in strategic thinking
- **Ethics and Social Responsibility**
  - Ability to foster an ethical climate in their roles and responsibilities in business and society
- **Critical Thinking**
  - Ability to clarify problems, generate and evaluate alternatives using appropriate analytical and quantitative techniques, and draw conclusions

**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."

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**Exams:**
There will be two exams covering material from the textbook, readings, assignments, and Enterprise Miner usage.

**Project:**
There will be a course project that utilizes SAS Enterprise Miner. Details will be provided in-class.

**Homework:**
There will be several homework assignments throughout the summer covering data mining applications in SAS and Excel.

**In-class work:**
We will be performing a number of in-class assignments (to be applied outside of class) using SAS Enterprise Miner therefore it is important that you attend class regularly.

**Class readings:**
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.
Grade Components:  
Exam 1  30%  
Exam 2  30%  
Project  30%  
Homework  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%

Class Schedule
(This is simply a guide and WILL be changed periodically. Check CANVAS for changes)

<table>
<thead>
<tr>
<th>Week of</th>
<th>Class Topics</th>
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| 5/19/14       | Course Introduction  
Intro to Data Mining  
Data Mining Process  
Statistical Review  
Introduction to JMP |
| 5/26/14       | Memorial Day – NO CLASS (5/26)  
Multivariate Data  
Cluster Analysis  
Make-Up Day (5/30) |
| 6/2/14        | Exam 1 - In-Class  
Regression (Simple, Multiple, and Logistic) |
| 6/9/14        | Principle Components Analysis  
Decision Trees |
| 6/16/14       | Neural Networks  
Decision Trees, Regression, & NNs (Wrap Up)  
Exam 2 (Models) - Out-of-Class |
| 6/23/14       | Model Comparison  
(Project due 6/27) |