

**Fall 2012 Course Syllabus**  
Business Intelligence Software and Techniques  
MIS6324 section 001& 501  
School of Management , The University of Texas at Dallas

---

## Course Information

### Course

<b>Course Number/Section</b>	MIS6324/ section 001 and 501
<b>Course Title</b>	Business Intelligence Software and Techniques
<b>Dates and Room</b>	T, 1:00-3:45 at 2.103 and W 7:00- 9:45 PM at 1.212

### Professor Contact Information

<b>Professor</b>	Eric Zheng
<b>Office Phone</b>	972-883-5914
<b>Email Address</b>	<a href="mailto:ericz@utdallas.edu">ericz@utdallas.edu</a> (students pls. use elearning for e-mails)
<b>Office Location</b>	SOM3.203
<b>Office Hours</b>	W 3:00-6:00 PM
<b>Other Information</b>	<a href="http://www.utdallas.edu/~ericz">http://www.utdallas.edu/~ericz</a>

### Course Pre-requisites, Co-requisites, and/or Other Restrictions

Officially MIS6326. Knowledge in database, probability and software (excel and SAS) helps.

### Course Description

The ability to understand, analyze and interpret businesses from data has become increasingly more important in any businesses. This class aims to equip you with highly demanded business analytics skills in the current job market. The course will focus on extracting business intelligence from firm's business data for various applications, including (but not limited to) customer segmentation, customer relationship management (CRM), customization, product assortment, web analytics, health care analytics and social network analysis. The class will be hands-on and the emphasis will be placed on the "know-how" aspect - how to extract and apply business intelligence to improve business decision making. We will use the various business intelligence tools bundled in the SAS suite, primarily SAS Enterprise Miner. Prior programming skill is not required. Throughout the class certain business secrets of several market leaders such as Walmart, google, amazon, Netflix, and facebook will be revealed.

The class roughly consists of three parts: theories, methods and applications of business intelligence. In Part I, we'll discuss general theories of business intelligence including problem, process and evaluation of BI. Part II covers many popular businesslike intelligence/data mining methods such as association rules, decision tree, neural network, clustering and classification. In Part III, we'll look into special applications. Depending on the progress of the class, we may cover personalization, customer relationship management, market data analysis, collaborative filtering, web analytics, text mining, social network analysis, financial engineering, healthcare analytics etc. We will discuss the inner workings of the methods to the level necessary to develop an understanding of when and how to use each technique. Students would also acquire hands-on experience working in teams and using state-of-the-art

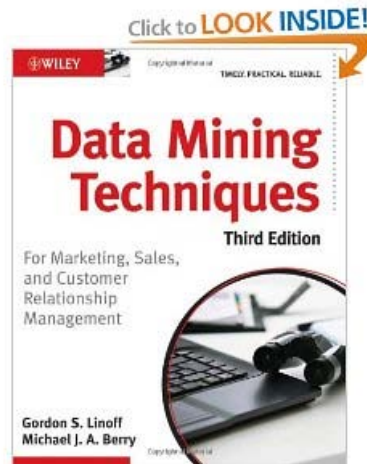
software (XL miner, SAS Enterprise Miner, Text miner) to develop data mining solutions to business problems.

### **Student Learning Objectives/Outcomes**

- To obtain a general understanding of today's business intelligence (BI) systems
- To become proficient in business intelligence methods
- To become aware of the current trends in the management and use of BI.
- To be proficient at BI software (XLMiner and SAS Enterprise Miner).

## **Recommended Textbooks and Materials**

### **Recommended Textbook**



**Data Mining Techniques:  
For Marketing, Sales, and  
Customer Relationship  
Management, Third  
Edition**

**Gordon Linoff and Michael  
Berry, 2011, Wiley,**

**ISBN: 0470650931**

### **Additional Readings (to be available at WebCT)**

(Articles are labeled from A1-A24. We'll only choose SOME of them to discuss in class)

#### **Week 1:** General BI Introduction

A1: "The impact of business analytics on performance and profitability", by SAS CEO Jim Goodnight

A2: "BI market share", an IDC Report

#### **Week2:** SAS BI

A3: SAS BI Vendor selection

A4: The technology direction of SAS

#### **Week3:** EnterpriseMiner

A5: SAS Enterprise Miner manual

#### **Week4:** Competing on Analytics

A6: "Competing on analytics" or "the dark side of customer analytics"

#### **Week5:** predictive Analytics

A7: "how Verizon cuts down customer churn for 0.5%" story on Verizon's use of data mining

A8: SAP's White paper on "Expanding BI's role by including predictive analytics".

#### **Week6:** predictive Analytics

A9: MISQ article "predictive analytics in information systems research" by Shmueli.

#### **Week7:** BI in Business

A10: Two cases on SAS business analytics

**Week 9: Recommendation Systems**

- A11: Amazon’s business secret:“Amazon.com recommendations”.
- A12: Gaullagher Chapter 3: Netflix, blockbuster (data) and redbox
- A13: “Tutorial on next generation recommender systems” by Alex Tuzhilin.

**Week 10: Web Analytics**

- A14: Choose one: Social media strategy, HBR11, Dell's ideastorm (MISQE
- A15: choose 1 of social media analytics article from i) "Starbuck case on social media and customer dialog management", MISQE by John Gallaugher; ii) "Best Buy's CEO on learning to love social media", HBR; iii) "Fire your marketing manager and hire a community manager", short HBR article; iv) "make the product itself viral", short HBR article; and v) "why customer referrals can drive stunning profits", HBR short article

**Week 11: BI Development and implementation issues (choose 1-2)**

- A16: “how large U.S. companies can use social media to gain business value”, MISQE
- A17: MISQE article "Developing an enterprise BI capability: the Norfolk Southern Journey"
- A18: “Sysco Business Intelligence”

**Week 12: Successful BI applications**

- A19: Zara - IT for fast fashion
- A20: the “Capital one” case

**Week14: Special topics**

- A21: ITC eChouple initiative or "BI in Cardinal Health"
- A22: SAS healthcare, Informs special issue

**Week 15: What's now and what's emerging?**

- A23: "From business intelligence to competitive intelligence", ISR article by Eric Zheng
- A24: BI in financial engineering

## Student Assessments

### Grading

Components	Grades
<b>Class Participation</b>	<b>5%</b>
<b>Projects</b>	<b>45%</b>
P1	10%
P2	10%
P3	10%
Term Paper or Term Project (include presentation)	15%
<b>Mid-Term</b>	<b>25%</b>
<b>Final Exam</b>	<b>25%</b>
<b>Total</b>	<b>100%</b>

Students can check their grades by clicking “My Grades” under Course Tools after the grade for each assessment task is released.

### Assignment submission instructions

You will submit your assignments (in the required file format with a simple file name and a file extension) by using the Assignments tool on the course site. Please see the Assignments link on the course menu or see the icon on the designated page. You can click each assignment

name link and follow the on-screen instructions to upload and submit your file(s). Please refer to the Help menu for more information on using this tool.

For the team project assignment, one group member will submit the assignment for the group and all group members will be able to view the results and feedback once it's been graded.

## Academic calendar

Week	Date	Topic	Assignments	Due
1	8/28-29	Course overview , BI overview, Analytics in business, how to obtain Enterpriseminer and XLminer, intro. to Query & Reporting BI	Read Syllabus, A1&2, Skim LB Ch 1-3	
2	9/04-05	Intro. to analytical BI, BI process, SAS BI Descriptive analytics (DA) 1: market basket analysis	Read A3, A4, Skim LB Ch15	Download XLMiner
3	9/11-12	Special Report: "BI market at DFW" DA 2: Association rules, XL Miner & EM demo 1, P1 warm-up DA3: market segmentation & clustering	<b>Start P1 &amp; P2</b> , Skim LB Ch13, start reading A5	
4	9/18-19	DA4: Clustering , XL Miner & EM Demo 2, "competing on analytics", P1 Q&A Predictive analytics (PA) 1: classification	Read A6 before class, Skim LB Ch6	Get SAS 9.3
5	9/25-26	PA2: Decision tree, EM Demo 3, P2 Q&A PA3: Neural network	Read A7, Skim A8, Skim LB Ch7	<b>P1</b>
6	10/02-03	PA4: Other classification methods, EM Demo4	Skim A9, Skim LB Ch8	
7	10/09-10	Case study on SAS Business Analytics, issues of BI, MT review	Skim A10, prepare for MT	<b>P2</b>
8	10/16-17	<b>Mid-Term</b>		
9	10/23-24	PA5: recommendation systems Amazon Recommendation, Netflix/BB PA6: Model evaluation	Read A11 before class, Skim A12&13, Skim LB Ch9	
10	10/30-31	PA7: PA in EM, P3 Q&A Special Topics (ST) 1: web analytics and Text Mining, Google, Text Miner Demo	<b>Start P3</b> , Read A14 or 15, Skim LB4	
11	11/06-07	ST2: social media analytics UCINET Demo, TP warm up	<b>Start TP</b> , Read A16, Skim A17&18, Skim LB Ch16	
12	11/13-14	ST3: Customer Relationship Management (CRM) & personalization, Zara, Harrah's, Capital One, loyalty program, Siebel	Read A19 & A20, Skim LB Ch21	<b>P3</b>
13	11/20-21	<b>NO Class (Fall Break)</b>		
14	11/27-28	ST4: Healthcare analytics or Analytics for Financial Analytics (time series data)	Read A21&22	
15	12/04-05	ST5: Emerging BI (CI) Your TP presentation	Read A23&24	<b>TP</b>
16	12/11-12	class wrap-up		
	12/13-19	<b>Final Exam week (TBD)</b>		

- I use **DA** to denote 'descriptive analytics', **PA** for 'predictive analytics' and **ST** for "special topics"
- I use **LB** to refer to Linoff and Berry's "data Mining Techniques". EM refers to SAS Enterpriseminer, P1-3 refer to project 1-3.

- Each week we'll discuss 1-2 articles (coded as A1-A24) related to class topics. Student volunteers will lead the discussion, which will be counted as participation points. You are also encouraged to come up with your own interesting topics (e.g. your company's use of BI/DM, BI/DM market in DFW area, demo on Business Objects, Cognos and SQL Server, on-demand BI, crowdsourcing analytics, mobile analytics, ITM web analytics etc.).

## ***ATTENDANCE, PARTICIPATION and Discussion***

**Attendance and participation are extremely important in the determination of your final grade! The class participation consists of:**

- Attendance: Students that attend classes often score much higher on exams and assignments and receive significantly better grades.
- Class Participation: Students are expected to participate in class discussions of case studies and assigned readings and be able to respond to general and individual questions based on assigned readings.
- Class Presentation: We'll have a list of extra readings/cases on which students can volunteer to present in class. You can also opt to present your term paper/project. I will also ask the group who did the best project to present their work.
- Web CT Discussion: Participation in the Discussion Board of WebCT will also be counted as points. Each student is required to at least contribute to two 'grade worthy' posts in the discussion board.

**Participation will be positively considered in the determination of the final grade, and students that regularly and actively participate in class discussions may automatically receive a grade of A, or significantly improve their final grade at the instructor's discretion.**

## **Elearning**

Much of the class information can be found at the WebCT Portal. Students will use their UTD NetID account to login to the course at: <http://elearning.utdallas.edu>. Please see the [course access and navigation information](#).

*The data which can be found there include the class schedule, assignments, the lecture slides and class news. This is also where you will access the Discussion Board. Posting comments on the discussion board will be counted towards class participation.*

To get started with a WebCT course, please see the [Getting Started: Student WebCT Orientation](#). If you have any problems with your UTD account or with the UTD WebCT server, you may send an email to: [assist@utdallas.edu](mailto:assist@utdallas.edu) or call the UTD Computer Helpdesk at: **972-883-2911**. If you encounter any technical difficulties within the course site, please send an email to [gmbasupport@utdallas.edu](mailto:gmbasupport@utdallas.edu).

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirement must be met to enable a successful learning experience. Please review the important [technical requirements and the web browser configuration information](#).

## Scholastic Honesty

The University has policies and discipline procedures regarding scholastic dishonesty. Detailed information is available on the [Scholastic Dishonesty](#) web page. All students are expected to maintain a high level of responsibility with respect to academic honesty. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced

## Course Evaluation

As required by UTD academic regulations, every student must complete an evaluation for each enrolled course at the end of the semester. An online instructional assessment form will be made available for your confidential use. Please look for the course evaluation link on the course Homepage towards the end of the course.

## University Policies

### Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

### Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

### **Email Use**

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

### **Withdrawal from Class**

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

### **Student Grievance Procedures**

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

### **Incomplete Grade Policy**

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

### **Disability Services**

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

### **Religious Holy Days**

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

### **Off-Campus Instruction and Course Activities**

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address given below. Additional information is available from the office of the school dean.  
([http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm))

***These descriptions and timelines are subject to change at the discretion of the Professor.***