IM 561: Business Analytics

Instructor:

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Class Hour: **Tues & Thurs 14:30 - 15:50 Class Room (TBA)**

Office Hours: Tues & Thurs 16:00- 17:00

Course Description:

In today's highly connected world, from clicks to downloads and beyond, consumers generate 2.5 billion gigabytes of data each day. Moreover, ever faster computers and optimization methods have become available to transform this data into information for better decision-making. Hidden in these data are invaluable insights for businesses of all sizes and types, across industries, and around the world.

Analytics has been with us since the dawn of arithmetic. With the advent of computer technology, the tools for conducting analytics have become more sophisticated but many of the basic questions are the same. How can we use quantitative analysis to understand events that have happened and how can we use data from the past to help predict the future? In this course, our eye will be focused on business analytics, the use of information technology to support the collection and analysis of data, turning it into actionable knowledge.

The objective of this course is to familiarize the students with the concept of business analytics and its applicability in a business environment. At the end of the semester, students should have acquired an understanding of business analytics – the terminology, concepts and familiarity of potential tools and solutions that exist today. The course is a combination of lectures, case studies, individual and group exercises.

Learning Objectives: Students will be able to:

1. To gain a basic understanding of business analytics and its applicability to various industries
2. Translate a business challenge into an analytics challenge
3. Understand the fundamental capabilities of business analytics
4. Identify the major types of business analytics and explore their use and impact within and across organizations
5. Discuss key business analytics tools, technologies, and approaches with a level of aptitude appropriate to communicating with technological specialists
6. Analyze big data, create statistical models, and identify insights that can lead to actionable results
7. Identify the technological and organizational trajectories of current business analytics, and be able to identify the core underlying analytical capabilities on which they are based

Textbook and Readings:

- Coursepack
- Davenport, Thomas H. (2013) *Enterprise Analytics: Optimize Performance, Process, and Decisions Through Big Data.* (Optional)

Class Components:

Components of the course include: lectures, discussions, articles, case analysis, group tasks and presentations, etc.

Grading Policy:

Your final grade will be weighted as follows:

Midterm exam (individual)	30%
Final exam (individual)	30%
Attendance& Participation (individual)	10%
Case Presentation (group)	10%
BA projects (group)	20%
Total	**100%**

****Attendance:**

- Class attendance during regular lecture hours is required. You will be expected to arrive in time and to remain in class until the end. If you must arrive late or leave early, please inform me or the TA beforehand. Late arrivals and early departures as well as missing classes will negatively influence your class participation mark.

- If you must miss a class, inform me beforehand via e-mail. There will be NO "MAKEUPS" for any work missed without a legitimate excuse. You have to provide the proof of a legitimate excuse (e.g. doctor's note) to get a chance for makeup.

- **If you entirely miss more than 4 class meetings without legitimate reasons, your course grade will be an F regardless of other work.**

- **Don't forget to sign on attendance sheets (No credit for any "forgot-to-sign" claims!)**

- Note that poor attendance may also critically affect your participation points, and therefore your final grade.

Midterm & final exams: The midterm and final exams will be based on **all lecture slides (most important), cases, and other reading material** covered during the course. These exams will focus on testing your understanding and application of organizational, managerial, and technological concepts. More detailed guidelines about the exams will be provided later.

- If you are involved in cheating or plagiarism on an exam, or assignment, you will LOSE WHOLE POINTS for the exam or assignment and be reported to an appropriate university committee or authority.

Discussion participation: Considering the interactive nature of the class sessions, class participation is an important part of the learning experience in this course. Students are expected to come prepared to participate in the class discussions and all students are expected to contribute in class. Note that participation points count 15% of your final grade.

Case analysis reports: There will be 6 cases to be discussed throughout the semester. Each team is required to prepare for a written case analysis report using power point slides for an assigned case. The case analysis assignment is due a day before it is discussed in class. The group on a given case is expected to do **a 20-minute presentation**.

The groups and students should:

•**Read**: Complete the assigned readings and case preparation prior to class.

•**Think**: Critically analyze all of the material presented in this module and ask key questions such as:

- Why is this being presented?
- What are the key problems and solutions discussed in the case?
- What are the company's SWOTs?
- How could the company or the manager have done better?
- Are there other ways to approach this problem?
- What are the current issues surrounding this company?
- What lessons can we learn from this case?
- Add any other questions that are appropriate for the case discussion

Be prepared to discuss your answers to these questions. Instructor may also post specific case questions.

•**Discuss**: Participate in class discussions and case analyses.

- All assignments should be handed in at the beginning of the class. Late assignments will be penalized with a minimum 20% markdown. This helps both you and me to stay on schedule and is only fair to everyone else who hands in his or her work on time.
- You are responsible for maintaining BACKUPS of all your assignment files until the end of the semester.

"Business Analytics" project: Your team (**a group of 3 people**) will research and analyze an emerging IT (i.e., a prominent technology, IT-related management issue) for the class. The oral presentation should be suitable for management audience rather than for techies, and should focus on the managerial and business aspects of the chosen technology. Detailed instructions are given at the end of this syllabus.

Course Schedule: Information Systems

* Note that this week-by-week scheduled program is tentative and subject to change as the class progresses. I will notify you of any schedule-related changes in advance if such events occur. In addition, the reading material can be modified as we progress. You will be notified of any changes in advance.

Week	Topics	Readings & Cases
1	Introduction to Big Data and Business Analytics	
2	Business and Strategic Value of Business Analytics (I)	🕮 Article 1: Analytics and Business Performance 💣 **Team formation due (Feb. 12th)**
3	Business and Strategic Value of Business Analytics (II)	🕮 Article 2: Competing on Analytics with Internal Processes 🕮 Article 3: Why IT Fumbles Analytics 🗐 **Case 1**: Dr. Tim's Premium All Natural Pet food
4	An Overview of Business Analytics Technology (I)	🗐 **Case 2**: Caterpillar Tunneling
5	An Overview of Business Analytics Technology (II)	
6	Statistical and Experimental Analytics (I)	🗐 **Case 3**: Procter & Gamble 💣 **Project proposal due (Mar. 12th)**
7	Statistical and Experimental Analytics (II)	
8	**Midterm Exam**	
9	Marketing Analytics	🕮 Article 4: Advertising Analytics 2.0 🗐 **Case 4**: Predilytics
10	Understanding Big Data Infrastructure	
11	IoT and Big Data	🗐 **Case 5**: TBA
12	Social Media Analytics	💣 **Project ppt draft due (Apr. 17th)**

13	Managerial Issues with Business Analytics (I)	🗐 **Case 6**: Outsourcing BA
14	Managerial Issues with Business Analytics (II)	
15	Project Presentation	
16	**Final Exam**	

Reading List

CASE 1: Dr. Tim's Premium All Natural Pet food: Growth Options and Web Analytics Insights (IVEY)

Glenna Pendleton

Publication Date Oct 18, 2012 , Revision Date Oct 17, 2012

CASE 2: Caterpillar Tunneling: Revitalizing User Adoption of Business Intelligence (IVEY)

Frances Leung and Murat Kristal

Publication Date March 31, 2014

CASE 3: Managing with Analytics at Procter & Gamble (HBR 9-613-045)

Davenport, Thomas, Iansiti, Marco, and Serels, Alain,

Publication Date Apr. 03, 2013

CASE 4: Predilytics (HBR 9-813-023)

Robert Higgins and Annelena Lobb

Publication Date July 15, 2014

CASE 5: TBA

CASE 6: Should You Outsource Analytics? (Sloan Review)

David Fogarty; Peter C Bell

Publication Date Jan 01, 2014

Article 1: Analytics and Business Performance: Transforming the Ability to Compete on Analytics into a Lasting Competitive Advantage, Thomas H. Davenport; Jeanne G. Harris, Mar 6, 2007

Article 2: Competing on Analytics with Internal Processes: Financial, Manufacturing, R&D, and Human Resource Applications (HBR), Thomas H. Davenport; Jeanne G. Harris, Feb 01, 2007

Article 3: Why IT Fumbles Analytics (HBR), Donald Marchand and Joe Peppard, Jan-Feb. 2013

Article 4: Advertising Analytics 2.0 (HBR), Wes Nichols, March 2013

Business Analytics Project Instructions

1. **DESCRIPTION**

You will present an example of contemporary business analytics use by an industry of your interest. You may use general audience outlets such as the Washington Post, the Wall Street Journal, or specialized outlets such as ecommercetimes.com to find articles on which to base your presentation. Your presentation should contain the following elements:

- Description of the application of business analytics including software used, data sources, use of data warehouse/data mart, etc.
- The organizations' objectives; advantages gained by the organizations
- Challenges to the effective use of analytics
- Ethical, security considerations

2. **DELIVERABLES**

(1) Project groups (3 person group, but may change depending on the enrollment)

- Submit group members' information, including name, student number, and e-mail address
- Send this information to our TA
- **Due: Feb. 12th, 2015**

(2) Project topics

- To make the presentations a valuable learning experience for the rest of the class, all topics must be approved by the instructor and ideally no two groups can present the same topic.
- **Proposal Due: March 12th, 2015 (send me TA a 1-page proposal by email)**
- **Follow-up Due: April 17th, 2015 (send me a ppt draft)**

(3) **Presentation (TBA)**

- At the end of the term, your group will deliver a formal presentation to the class that summarizes your research. You will have a limited time (max. 20 min) to make your presentation, so it will need to be concise and well-rehearsed.

3. EVALUATION

Your presentation will be evaluated by both the instructor based on these criteria:

1. The presentation was interesting and stimulating.
2. The presentation was easy to understand.
3. The presentation offered useful, new information (informative).
4. The presentation was well organized.
5. The presentation had important implications to managers.
6. The presentation had insightful, in-depth research material.
7. The presentation was finished within time limit.
8. The presenters were enthusiastic and confident.
9. The presenters answered the questions professionally.
10. The presenters had good language command.