Georgia Institute of Technology
Scheller College of Business
MGT 4803 Business Analytics

Spring 2014

PROFESSOR

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CLASS INFORMATION

Classroom: COB 222
Class Time: Monday/Wednesday 1:35-2:55pm
Class Website: TSquare

TEACHING ASSISTANT

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COURSE DESCRIPTION

Today, businesses, consumers, and societies leave behind massive amounts of data as a by-product of their activities. Leading-edge companies in every industry are using big data analytics to replace intuition and guesswork in their decision-making. As a result, managers are collecting and analyzing enormous data sets to discover new patterns and insights and running controlled experiments to test hypotheses.

This course prepares students to understand big data and business analytics and become leaders in these areas in business organizations. This course teaches the scientific process of transforming data into insights for making better business decisions. It covers the methodologies, algorithms, issues, and challenges related to analyzing business data. It will illustrate the processes of big data analytics by allowing students to apply business analytics algorithms and methodologies to real-world business datasets from finance, marketing, and operations. The use of real-world examples and cases places business analytics techniques in context and teaches students how to avoid the common pitfalls, emphasizing the importance of applying proper business analytics techniques. In addition to cases, this course features hands-on experiences with data collection using Python programs and business analytics software such as SAS.

LEARNING OBJECTIVES

After taking this course students should be able to approach business problems data-analytically. Students should be able to think carefully and systematically about whether and how data and business analytics can improve business performance.

Students should be able to develop and execute business analytics projects within business organizations. Students should be able to form business analytics ideas, collect data from various sources and analyze data using business analytics software to gain business insights.

Students should also be able to interact intelligently on the topic of business analytics with CIOs, business managers, and data scientists.

COURSE NORMS AND EXPECTATIONS

We use a variety of lectures, lab sessions, cases, and in-class discussions in this course, and as such, it is crucial to appreciate that students in the class are co-producers of class discussions and collective learning. For this to happen, class members need to listen carefully to one another and build on or critique prior comments. Discussions need to stay on track, and it is the responsibility of the faculty and students to collectively accomplish this. The discussion should be a conversation in which all participants recognize that they have an obligation to advance our understanding of the issue at hand. Your contributions to this learning process will be appraised in addition to the content of what you contribute.

Please refer to the following sources for information on academic integrity and information for students with disabilities.
Academic Integrity: Honor Code (http://www.honor.gatech.edu)
Students with Disabilities: ADAPTS (http://www.adapts.gatech.edu)

Because this course relies heavily on class participation for its success, class norms and expectations regarding class behavior are very important:

1. Attendance at every class is required. Please schedule other activities at times other than when this class meets. Please arrive on time and stay from the beginning of class to the end. If you must miss a class, please advise the instructor in advance. If you unable to attend a class, it is your responsibility to find out from your classmates what materials were covered, what items were distributed in class, and what key points were collectively advanced.

2. Please come to class prepared to discuss the readings. In every class, I may "cold call" students whose hands are not raised. If something has prevented you from being prepared for class that day, you should let the instructor know before the start of class. The primary reading assignments are mentioned in the course schedule. Other readings assignments, if any, will be posted on the course website, and or distributed in class. You are responsible for checking the course website before every class for announcements, assignments and schedule changes.

3. During class sessions, please turn off cell phones or put them on vibration for emergencies. Please turn off laptops and tablet devices. If you need to use laptops or tablet devices for note taking purposes, please let the instructor know.

4. There are a few lab sessions, which would require you to bring your laptops and run analytics software on them. I will let you know beforehand the time of such lab sessions.

5. Please bring your name card and sit in the same seat for each class. This will make it easier for me to get to know you and to make sure you get appropriate credit for your contributions.

ASSIGNMENTS AND GRADING

Grades will be assigned on the following basis:

Class Participation	10%
Individual Assignments	30%
Team Project	30%
Midterm Exam	30%

A. Exam

There is one midterm exam. The exam will be closed books and closed notes. The use of cell phones / tablet devices / laptops is prohibited, except in special circumstances previously approved by the instructor. Students will not be allowed to take a make-up exam, except in special circumstances previously approved by the instructor. The instructor has the sole right to make determinations concerning the potential for make-up exams.

B. Individual Assignments

There are five individual assignments. Detailed explanations of each assignment will be posted on the class website. Each assignment must be submitted **no later than class time** on the day it is due. Any submission after class time (regardless of whether it is minutes, hours, or days) will not be accepted. There is **NO GRACE PERIOD** for the submission of team assignments. **Students** are responsible for making sure that individual assignments are submitted in a timely manner according to the course guidelines. Each assignment should be submitted by email.

C. Projects

There is one team project. Detailed explanations of the project will be posted on the class website. Students will substantially contribute to the completion of the team project in this course. The project gives students an opportunity to creatively think how the knowledge learned in this class can be applied to a real business problem.

There are two deliverables for the team project – a short paper and a presentation. The short paper must be submitted **no later than class time** on the day it is due. The last two classes will be devoted to team presentations of the projects. Any submission after that time (regardless of whether it is minutes, hours, or days) will not be accepted. There is **NO GRACE PERIOD** for the submission of team projects. **ALL** members of the team are responsible for making sure that team projects are submitted in a timely manner according to the course guidelines. Each project (a short paper and a presentation) should be submitted by email and the team should also print a physical copy and bring it to the class. A **PEER EVALUATION** component will be used to add or deduct points as needed, based upon teammates' evaluation of your work.

D. Attendance and Class Participation

Students are expected to attend all class sessions. Class sessions provide useful information – both for understanding the topics and cases covered in the course and for working on the project. Reading materials in the course packet alone may not prove to be sufficient for one to do well in the course. The instructor may "cold call" individual students in class. Participation may be gauged in a number of ways including direct input into class discussion by a student, in-class activities that show understanding and input into the material coverage, etc. Activities such as sleeping in class, coming to class late or leaving early without advanced notice, reading newspapers or doing non-class-related

work, classroom disruptions, and etc. will adversely affect the participation grade. **Quality is as important as quantity**, when I assign participation grades. I will make notes on participation at the end of each class and assign grades at the end of the semester based on these notes.

Rating	Explanation
0	Student was absent from class (even if excused)
1	Student was present in class, but was not adequately prepared (regardless of level of participation) or made no valuable contributions to the class (e.g., re-stated others' comments, made long rambling statements without a clear point, etc.)
2	Student was active in class, well-prepared, and made outstanding contributions (e.g., introduced valuable ideas or made particularly insightful observations)

TEXTBOOKS

Required: (DH) Davenport & Harris. Competing on Analytics: The New Science of Winning. Harvard Business School Press. 2007. (You can get either hardcover, paperback, or Kindle version.)

Additional readings will be posted on TSquare or sent via emails. Students are expected to read all the readings and be prepared for in-class discussions.

TENTATIVE CLASS SCHEDULE

Class schedule may be slightly modified during the semester. Please check the class website and emails before every class for announcements, assignments and schedule changes.

Date	Session Topic	Readings	Items Due
Jan 6	Introduction	Review Syllabus.	Team Formation Due
Jan 8	Business Value of Big Data Analytics	(TSquare) McAfee & Brynjolfsson. 2012. Big Data: The Management Revolution. Harvard Business Review. (DH) Chapter 1. (TSquare) Brynjolfsson et al. 2012. Strength in Numbers: How Does Data-Driven Decisionmaking Affect Firm Performance?	
Jan 13	Process of Big Data Analytics	(TSquare) Garvin. 2013. How Google Sold Its Engineers on Management. (DH) Chapter 8.	
Jan 15	Managing Big Data Analytics	(Case) Managing with Analytics at Procter & Gamble. HBS Case 613-045. (DH) Chapter 3.	Assignment 1 Due
Jan 20	MLK Holiday		
Jan 22	Big Data Tools	Guest lecture on Web Scraping	
Section 1: Business Analytics Skills			
Jan 27	Data Preparation	(TSquare) Lecture notes.	
Jan 29	Snow Cancellation	(TSquare) Lecture notes.	
Feb 3	Data Exploration and	(TSquare) Lecture notes.	

	Visualization (1)		
Feb 5	Data Exploration and Visualization (2)	(TSquare) Lecture notes.	
Feb 10	Modeling Data (1)	(TSquare) Lecture notes.	Assignment 2 Due
Feb 12	Snow Cancellation		
Feb 17	Modeling Data (2)	(TSquare) Lecture notes.	
Feb 19	Modeling Data (3)	(TSquare) Lecture notes.	
Feb 24	Modeling Data (4)	(TSquare) Lecture notes.	Assignment 3 Due
Feb 26	Modeling Data (5)	(TSquare) Lecture notes.	
Mar 3	Modeling Data (6)	(TSquare) Lecture notes.	Project Midterm Report Due
Mar 5	Challenges and Issues in Big Data Analytics (1)	(TSquare) Lecture notes.	Assignment 4 Due
Mar 10	Challenges and Issues in Big Data Analytics (2)	(TSquare) Lecture notes.	
Mar 12	Midterm Exam		Midterm Exam
Section 2: Business Analytics Applications			
Mar 17	Spring Break		
Mar 19	Spring Break		
Mar 24	Social Media Analytics	(TSquare) Lecture notes.	
Mar 26	Digital Analytics	(VML talk)	Assignment 5 Due
Mar 31	Marketing Analytics in Retailing	(Home Depot talk) (DH) Chapter 5.	
Apr 2	Risk Management in Banking	(Equifax talk) (DH) Chapter 5.	
Apr 7	Supply Chain and Demand Modeling in CPG/Retailing	(DataVentures talk) (DH) Chapter 5.	
Apr 9	Industrial Analytics	(Siemens talk)	
Apr 14	Future of Big Data Analytics	(TSquare) Lecture notes.	
Apr 16	Student Presentations		Project Slides Due
Apr 21	Student Presentations		
Apr 23	Student Presentations		Project Final Report Due
Finals Week			