Syllabus

Business Adm 3630.05 - Introduction to Business Analytics
(2 Credit Hours)
Fall Semester 2013

Instructor: Ralph Greco, BS. MS. Industrial Engineering
230B Mason Hall
Greco.24@osu.edu
Greco.24@fisher.osu.edu
(office) 614-688-8090
(cell) 614-286-3350

Class Schedule Tuesdays 5:30 - 7:30, Schoenbaum 319

This course is the first in a two-course sequence that comprises the course requirement for students enrolled in the Fisher Business Analytics Cluster and which, when combined with other requirements, provides students with in-depth competence in Business Analytics business practices. This first course is a pre-requisite for enrollment in the second course in this sequence which will be offered during the Spring Semester. Instructional staff for this first course in the two-course sequence includes Faculty from the Fisher College as well as representatives from the sponsoring companies -- Scotts, Chase, Nationwide, IBM and Teradata.
Learning Objectives

1. To gain a basic understanding of Business Analytics and its applicability to various Industries
   a. Understand the fact from fiction in the current environment.
   b. What is Big Data and other terminology that is used in the marketplace today?
   c. Who are the current key players in Business Analytics?
2. Critical Thinking and its place in Business Analytics
   a. Inductive vs Deductive Reasoning.
   b. Framing the question(s) needed by the business, that will then drive the data requirements
3. Working with the data
   a. Data Mining techniques
   b. Data Management techniques
4. Descriptive Analytics
   a. Understanding what the data is, and what it might be telling you
   b. Basic Tools for Descriptive Analytics
      i. Lotus, MS Excel and others
   c. Advanced Tools for Descriptive Analytics
      i. Visualization
5. Predictive Analytics
   a. Can the data provide us with insights as to future events, potential results?
   b. Basic Tools for Predictive Analytics
      i. Excel, Minitab
   c. Advanced Tools for Predictive Analytics
      i. SPSS, R
6. Prescriptive Analytics
   a. Next best action
Course Overview

The overall objective of the first course in the Business Analytics industry sequence is to familiarize the students with the concept of Data Analytics (Big Data) and its applicability in a business environment. This course will utilize both faculty from Fisher College as well as Corporate Executives from sponsoring companies and Analytics vendors. These individuals will lead discussions on various topics central to Analytics.

At the end of the Fall semester, students should have acquired an understanding of Analytics - the terminology, concepts and familiarity of potential tools and solutions that exist today. This will not be an in depth study of modeling or optimization techniques, but when the two course sequence is completed, student should be better familiar with overall analytics tools/techniques and their use in corporate environments.

The course is a combination of lectures, case studies, individual and group exercises (teams of 2 -3). Class interaction will be a key component of the overall grade, and students are expected to be prepared each week when they attend. It is assumed that each student will be familiar with basic technology (web search, etc), have access to a computer (not an iPad), and have basic knowledge of statistics, and math. We will not be finding a solution for a quartic equation, but we will be discussing regression methods (linear, non linear, Bayesian). Be prepared accordingly.

All students are expected to maintain professionalism in their interactions with the external speakers. This includes interactions during their presentations, and in any outside classroom events (social or otherwise).

Students need to be ready to go each week in class. Discussions in class can only be fueled by those individuals that are ready to ask questions, provide feedback (non emotional) and defend their positions with logic and facts - just as you will have to do in a corporate environment.

There will be multiple opportunities/requirements for the student to present in class. This includes presenting to their peers, OSU Faculty and external speakers.
Course Mechanics

**Grading**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>30%</td>
</tr>
<tr>
<td>Individual Presentations</td>
<td>50%</td>
</tr>
<tr>
<td>Small Group Presentations</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Attendance Policy**

Students are expected to attend all cluster activities and classes. Absences will be excused only in the case of health problems (doctor’s note required) or death in the family. Unexcused absence may result in reduction of points from the final course grade.

**Cell Phone Use**

Absolutely no cell phone use in class whatsoever! During breaks or outside of classroom, no problem.

**Computer or Tablet Use**

Only allowed in the classroom for class related activities (taking notes or presentations).

**Projects, Case Studies**

The class will be divided into project teams at various points in the semester. Team Lead will be assigned by Instructor or Guest Lecturer.

**Class Participation**

Obviously, given that class participation is 30% of the overall grade, each student should be “ready to go” each week. Guest lecturers will leave plenty of time at the end of their lecture/discussion for questions and as a result the students need to be actively listening and engaged during the presentation.
<table>
<thead>
<tr>
<th>Date</th>
<th>Lecturer</th>
<th>Topic</th>
<th>Assignments</th>
<th>Assignments Due</th>
</tr>
</thead>
</table>
| 8-27-13| Greco             | Class Introduction                                                   | 1. Analytic Company Review  
                                              2. Book Reviews                                                                 |
| 9-03-13| Greco             | Big Data = ?  
                                              ? = Analytics                                                               | Company Reviews                  |
| 9-10-13| Greco Dr. Tom Bishop | Critical Thinking - Inductive vs. Deductive Reasoning                | Company Reviews                  |
| 9-17-13| Greco Dr. Waleed Muhanna | Data Mining                                                        | Company Reviews                  |
| 9-24-13| Greco Mark Plessinger (IBM) | Data Management Intro of Case Study #1                             | Case Study #1                    |
| 10-1-13| Greco             | Introduction of Case Study #2  
                                              Viz Lab Discussion                                                          | Case Study #2                    | Case Study #1                    |
| 10-8-13| Greco Anson Asoka (Scotts) | Descriptive Analytics Discussion of Case Study #2                |                                                                                   |
| 10-15-13| Greco Joe Proudfoot (Chase) | Descriptive Analytics                                              | Viz Lab                                                                         |
| 10-22-13| Greco Dr. Greg Allenby | Predictive Analytics                                               | Viz Lab                                                                 |
| 10-29-13| Greco             | Predictive Analytics                                               |                                                                                   |
| 11-5-13| Greco Dr. VanHulse (Chase) | Predictive Analytics                                               |                                                                                   |
| 11-12-13| Greco Kim Hendrix (IBM) | Prescriptive Analytics                                              |                                                                                   | Case Study #2                    |
| 11-19-13| Greco Jim Stewart (TDC) | Prescriptive Analytics                                              |                                                                                   | Book Reports                     |
| 11-26-13|                 | Thanksgiving Week                                                   |                                                                                   |
| 12-3-13| Greco             | Blue Jackets ???                                                    |                                                                                   | Over flow                        |
Attachment #1

Analytics Companies (Fall 2013)

Aerospike
Alteryx
Clearstory Data
Cloudera
Concurrent
Datameer
Datastax
ESRI
Guavus
GreenPlum
Hadapt
HortonWorks
IBM - Cognos
IBM - i2
IBM - SPSS
IBM - Vivisimo
Kaggle
Kapow Software
KarmaSphere
Oracle
Pentaho
Platfora
Precog
Predictive Technologies
Quid
Revolution Analytics
SAS
Sisense
Space-Time Insight
Splunk
Tableau
Talend
Teradata
Books for Review (Fall 2013)


The Shallows. Nicholas Carr (2009)


The Optimization Edge. Steve Sashihara. (2011)

The Signal and The Noise. Nate Silver. (2012)

The Big Switch. Nicholas Carr. (2013)


To Save Everything, Click Here. Evgeny Morozov. (2013)


What to Expect When No Ones Expecting. Jon Last (2013)


Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie or Die. Eric Siegel. (2013)

Moneyball. Michael Lewis. (2011)


Freakanomics. Steven Levitt. (2009)


Thinking, Fast and Slow. Daniel Kahneman. (2011)


The Information. James Gleick. (2011)
Attachment #3

Glossary of Terms (ones to know!)

A/B Testing
Classification
Cloud Computing
Cluster Analysis
Crowdsourcing
Data fusion
Data Mining
Data Warehouse
Ensemble Learning
ETL (extract transform load)
Genetic Algorithms
Hadoop
Machine Learning
Mashup
Metadata
Network Analysis
NoSQL
Optimization
Pattern Recognition
Predictive Models
R
Regression
Sentiment Analysis
Signal Processing
Spatial Analysis
Spatial-Temporal Analysis
SQL
Statistics
Stream Processing
Structured Data
Unstructured Data
Visualization