PREDICTIVE ANAYTICS AND DATA MINING (MKTG 630)

Course Syllabus – Spring Semester 2016

Radford University
College of Business and Economics
Department of Marketing

INSTRUCTOR: Dr. Wil Stanton
Professor of Marketing

OFFICE: **COBE Building --** BE374
Tel: 540.831.5015 (Office)
540.633.2292 (Home)
Fax: 540.831.6438
E-mail: wstanton@radford.edu
twitter.com/AnalyticsProfs
http://www.linkedin.com/in/drwilstanton

OFFICE HOURS: Tuesday and Thursday, 9:00 AM – 10:30 am and Thursdays 3:30 p.m. to 4:30 p.m. I may also be around outside of my scheduled office hours. If you need to see me and you can't make it during my scheduled office hours, contact me and so a time can be set up for us to meet (or if you're in the neighborhood, just stop by -- if I'm in, my door is usually open).

TIME/PLACE: **The course will be part synchronous and part asynchronous.** The synchronous portion will be on Tuesday 5:00 – 6:15 p.m.

Required TEXT: Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management - third edition by Gordon S. Linoff and Michael J. A. Berry, Wiley (April 12, 2011) - **ISBN-10**: 0470650931 **ISBN-13**: 978-0470650936

About $28 at Amazon

Win with Advanced Business Analytics: Creating Business Value from your Data by Jean Paul Isson and Jesse S. Harriott, Wiley (2013) - **ISBN-10**: 1118370600 **ISBN-13**: 978-1-118-37060-5 - About $38 at Amazon

In addition to the text, there will be other online required readings posted to the course D2L site.

COMPUTER: You will need a computer that runs a recent version of the Windows Operating System (Windows 7 or higher). You will also need to have Microsoft Office 2013 installed on your computer. These are now requirements for students in the Radford University MBA program and are a requirement for this course. If you have a Mac and you do not wish to set it up to run Windows, you will either have to (1) use computer labs on the Radford University campus, (2) borrow a laptop that meets these requirements, or (3) purchase a laptop that meets these requirements.

EXPECTATIONS: Students enrolling in MKTG 630 must be able to:

- Use basic information technology tools (e.g., spreadsheets, word processors, web browsers, e-mail readers, presentation packages, etc.);
- Demonstrate an ability and a willingness to learn the course content;
- Behave in a professional manner; and
- Work effectively with other class members.

PREREQUISITES: Graduate Standing, familiarity with basic business statistical tools, and of course, tenacity, and a desire to learn.

FOUNDATIONS FOR THIS COURSE

This course supports the mission, vision and learning outcomes sought for all MBA students in the College of Business and Economics at Radford University:

Vision and Mission of the College of Business and Economics:

> Our vision is to be recognized for challenging minds, cultivating talents and connecting people in a technology-rich learning environment.
>
> Our mission is to provide an active learning environment that develops analytical and innovative business professionals for a dynamic global economy.

Employer Expectations: This course also supports the needs and expectation of employers when hiring college graduates.[1] Specifically this course will focus on the needs of employers in the following areas:

Intellectual and practical skills, specifically

- The ability to communicate effectively, orally and in writing
- Critical thinking and analytical reasoning skills
- The ability to analyze and solve complex problems
- Teamwork skills and the ability to collaborate with others in diverse group settings
- The ability to innovate and be creative
- The ability to locate, organize, and evaluate information from multiple sources
- The ability to work with numbers and understand statistics

Predictive Analytics and Data Mining. Predictive analytics and data mining can be used to seek out increasingly small patterns in the data (patterns that could not have been seen just a few years ago) to better understand a company's products, channels, partners, customers (down to the behaviors of an individual customer), and more.

BACKGROUND FOR THE COURSE

Data is the unstoppable train barreling down on businesses. Companies are witnessing an exponential growth in data and find they are ill prepared to turn the data in to meaningful information for management decision making. In 2009, an estimated 800,000 petabytes of data existed worldwide, but today, there is 1.2 trillion gigabytes of digital data – and the amount of data is growing exponentially. With so much raw data, organizations urgently need tools and employees who know how to use them to effectively and efficiently extract actionable information to help optimize business decisions.

But, Big Data alone nets a company nothing. It's how the data are mined, models built, and predictions made that separate the truly successful world-class companies from the wannabes.

Analytics to the rescue!! Analytics is both an art and a science to discover and understand historical patterns in a company's data in order to predict and improve business performance under forecasted environmental, economic, and competitive conditions.

Companies want employees that understand the business domain in which decisions are to be made and depth and breadth of understanding of the analytical tools necessary for decision optimization. But the reality is: the demand for individuals grounded in Analytics, particularly in Data Mining and Predictive Analytics, far exceeds the supply of graduates.

The U.S. Bureau of Labor Statistics predicts that there will be a 24 percent increase in demand for professionals with management analysis skills over the next eight years; and McKinsey Global Institute Predicts there will be a shortage of talent necessary for organizations to take advantage of Big Data. By 2018, the United States alone could face a shortage of 140,000 to 190,000 people with

---

[1] "Employers' Views On College Learning In The Wake Of The Economic Downturn: A Survey Among Employers," Conducted On Behalf Of The Association Of American Colleges And Universities, Hart Research Associates, January 2011.

deep analytical skills as well as 1.5 million managers and analysts with the know-how to use the analysis of big data to make effective decisions. On August 1, 2015 (at 10:15 a.m.) there were a total of 131,878 jobs advertised on LinkedIn and, of those, more than 31,000 were for entry level (people with a baccalaureate degree and limited experience) or associate level (graduate degree or 3-5 years of experience) as is shown in the table below:

Analytics U.S. Position Ads on LinkedIn*

Area of Analytics	Entry or Associate**	All Levels
All Analytics Position Ads	31,501	131,878
Social Media Analytics	9,842	31,125
Marketing Analytics	7,546	31,160
Healthcare Analytics	7,438	25,279
Financial Analytics	6,083	30,594
HR/Talent Analytics	5,773	17,241
Media Analytics	4,212	13,502
Pricing Analytics	3,153	7,129
Retail Analytics	2,960	11,848
Digital Analytics	2,859	17,153
Fraud Analytics	2,621	20,519
Supply Chain Analytics	1,031	6,761
Credit Analytics	831	9,079

*Data Captured at 10:15 a.m. on Aug 1, 2015
**Associate Level generally requires 3-5 years of experience or an MBA or other Advanced Degree

NEED FOR THE COURSE

The growing global utilization of Big Data to assist in strategically positioning corporations for competitive advantage results in an expectation that a new employee holding an MBA be able to apply predictive analytics and data mining tools and techniques to solve strategic business problems. At no time has there been a greater need for quantitatively skilled and analytically minded managerial expertise. This need is being evidenced in a transformation of MBA programs across the country and around the globe. Universities are beginning to offer graduate courses or entire MBA programs focused on preparing graduates fully grounded in business principles, but who also possess the analytical skills to develop better decision models and create more accurate predictions from the stores of Big Data. Companies are collecting more data than ever before. In the past they were kept in different systems that were unable to talk to each other, such as finance, human resources or customer management. Now the systems are being linked, and companies are using Data Mining techniques to get a complete picture of their operations—"a single version of the truth", as the industry likes to call it. Data Mining and Predictive Analytics is the process of finding patterns in data that can be used to help optimize business decisions; and is becoming the bedrock of a new generation of companies and the individuals who lead them. Data Mining and Predictive Analytics has come to be essential to preparing new MBA students to assume leadership roles in an emerging data driven decision making environments.

The table below displays employer demand from the Corporate Recruiters Survey[2] which is a product of the Graduate Management Admission Council® (GMAC®), and the owner of the Graduate Management Admission Test® (GMAT®), for recent graduate business hires by job function and job level placement within each function. In 2015, 54 percent of employers indicated they will fill marketing and sales positions with a recent MBA or other specialized business master's graduate. These companies will place the majority (80%) of these new hires in mid-level positions. Data analytics tied with finance for

[2] **Corporate Recruiters Survey 2015 – Survey Report**, Graduate Management Admission Council (GMAC), (2015) http://www.gmac.com/market-intelligence-and-research/research-library/employment-outlook/2015-corporate-recruiters-survey-report.aspx

second place in the list of job functions employers most seek to fill in 2015, with 51 percent of employers planning to hire recent graduates to occupy these roles.

Employer Demand for Recent Business School Graduates, by Function, Overall & by Job Level

Function	% of Companies Placing Recent Hires in Function	Job Level Within Function			
		Entry	Mid-Level	Senior	Executive
Marketing/sales	54%	62%	80%	44%	16%
Data analytics	51%	67%	83%	46%	19%
Finance	51%	63%	81%	44%	17%
Business development	50%	61%	83%	50%	20%
General management	48%	63%	84%	46%	16%
Operations and logistics	47%	61%	84%	49%	17%
Consulting	43%	64%	79%	46%	21%
Accounting	42%	72%	78%	48%	19%
HR/organizational management	40%	69%	82%	50%	20%
IT/MIS	39%	70%	82%	54%	20%
Investment banking	30%	67%	78%	50%	22%

*Percentages do not sum to 100 due to multiple selections.

According to the GMAC report, "The demand for new hires skilled in data analytics has grown notably in recent years. The burgeoning interest in a field that has come to be known as 'big data' is gaining a strong foothold in companies worldwide as well as in higher education. (See sidebar for deeper analysis.) By region, companies in Asia-Pacific are seeking to fill roles in general management, business development, and operations and logistics, whereas companies in Latin America are more likely to place recent graduate business hires in marketing, finance, and data analytics functions (see table below)"

Top Job Functions for Recent Business School Graduates, by World Region & Percentage of Employers*

Asia-Pacific		Europe		Latin America		United States	
General management	78%	Business development	71%	Marketing	72%	Marketing	47%
Business development	75%	Marketing	65%	Finance	66%	Finance	46%
Operations/logistics	75%	Data analytics	65%	Data analytics	66%	Data analytics	45%
Marketing	73%	Operations/logistics	63%	Business development	66%	General management	42%
Finance	71%	General management	46%	Operations/logistics	66%	Consulting	40%

*Percentages do not sum to 100 due to multiple selections.

Historically, companies have hired graduates trained in statistical and/or quantitative methods who use tools such as Excel, SQL, SAS or SPSS to manipulate data and create decision models from databases. The problem is that such hires often lack an understanding of fundamental business decisions and the key drivers of consumer purchase behavior. Companies today seek a new breed of graduates -- MBA graduates fully grounded in business principles, but who also possess the analytical skills to develop better decision models and create more accurate predictions of customers' response to business decisions. Analytics drives organizational insights. Insights lead to greater understanding of customers and markets; that understanding yields innovative products and services, better customer targeting, improved pricing, and superior growth in both revenue and profits. That's why today's companies are viewing Analytics and employees who can create and use them as essential for creating Value.

GOALS AND OBJECTIVES OF THIS COURSE

In completing this course students will be able to:

- recommend the appropriate Predictive Analytics and Data Mining techniques for a variety of business decision problems;
- apply the processes of Predictive Analytics and Data Mining for formulating business objectives, data selection, preparation, and partition to successfully design, build, evaluate and implement analytic models for a variety of practical business applications;
- analyze large datasets typical in today's corporate setting using IBM SPSS, SPSS Modeler, SAS, SAS Enterprise Guide, and SAS Enterprise Miner advanced Data Mining software;
- apply predictive models such as classification and decision trees, neural networks, regressions, association analysis, and link analysis, to typical corporate Big Data;
- Interpret analyses produced by advanced analytical procedures and explain the results to better inform management decision-making.
- apply Knowledge Discovery processes across all stages of data mining including domain understanding, data collection and selection, data cleaning and transformation, dimensionality reduction, pattern discovery, evaluation, and knowledge extraction;
- apply data mining techniques to segmentation, classification, predictive modeling, association analysis, and sequential pattern discovery;
- gain hands-on experience with industry standard predictive analytic and data mining software including SPSS, SPSS Modeler, SAS, SAS Enterprise Guide, and SAS Enterprise Miner;
- determine which predictive analytics and data mining tool to use as well as understand the similarities and differences, which options affect the models most and how to verify and validate models;
- acquire skills in text analytics, text mining and sentiment analytics by understanding the "sentiment" conveyed in the vast and ever increasing amount of unstructured, user generated text from sources such as online reviews, tweets, forums, blogs, and internal customer data;
- develop and apply ensemble methods to leverage the power of multiple, complementary models to deliver additional business insight to ensure long term competitiveness;
- explore the applications of predictive analytics and data mining through a "hands-on" process where you will develop understanding mainly through conducting application projects and presenting results in such areas as: advertising/media; banking; customer acquisition and CRM; education; finance; fraud detection; healthcare; law enforcement; personnel/HR; political/politics; real estate; retail; sports; and web/Internet shopping.

ANALYTICAL TECHNIQUES COVERED

This semester we will explore various analytical techniques applied to predictive analytics and data mining. We will cover a few preliminaries before moving aggressively into Data Mining and Exploratory Data Analysis (EDA) and Predictive Modeling (PM). A Data scientist/Decision Scientist must be fully grounded in the tools, techniques, assumptions, identification of violations of assumptions, consequences of violating assumption, etc. BEFORE beginning any Data Mining and/or Predictive Modeling effort - particularly if the effort is focused on Big Data Applications. So we will begin with a review of some basic statistical tools and then move into more advanced and more complex algorithmic processes. Predictive Analytics and Data Mining are not as simple as introductory statistics courses may have led you to believe, i.e., EDA and PM cannot be accomplished using only t-test, correlation, and regression analyses - and normality rarely exist. The techniques listed here are the ones planned for the semester, but the actual ones covered will depend on time, your abilities, and your desire to explore techniques specifically focused on your career goals.

However, Data Mining and Predictive Analytics are only part of the solution. Analytic insights gained from EDA and PM must be put to work and used properly to aid in optimizing business decisions. This course covers Predictive Analytics and Data Mining methods for both private and public sectors enterprises, but, as this is an MBA course, the analytic procedures covered will be used as a means to an end; with the end being better and more efficient decision making.

- Descriptive Statistics
- Cross-Tabulation
- Correspondence Analysis
- Correlation
- Canonical-Correlation Analysis
- Factor Analysis and Principal Components Analysis
- Cluster Analysis
- Regression Techniques Including Linear and Non-Linear Models
- Logistic Regression
- Discriminant Analysis
- Factor and Discriminant Mapping
- Classification and Regression Trees, e.g. CHAID
- Cumulative Gains and Lift Charts and Other Visual Aids For Measuring Model Performance
- Survival Analysis, e.g., Cox Regression Models
- Market Basket Analysis
- Neural Networks

TEACHING METHODS

This is an MBA course designed to assist you in effectively contributing to your organization as a business professional. Of course, as a student in Radford University's College of Business and Economics' MBA program, you must be a responsible student. Therefore, I will expect you to attend the synchronous class having completed all required assignments and fully prepared to actively engage in your education.

Everything we do in this class is designed to help you become and think like a graduate qualified business professional. I will not ask you to simply memorize information and then recite it back. Instead, I will expect you to internalize the principles, concepts, and theories of Analytics and then use those actively in every synchronous class and in every class assignment. Because not all students learn in the same ways, I will utilize a variety of teaching methods including synchronous lectures, case studies, readings, assignments, and exams. I will emphasize critical thinking and analytical reasoning in all materials covered; and will expect a professional level of oral and written communication from you. As this is an MBA class, I will use Socratic questioning to foster learning; and more importantly to help you learn about the exponentially growing Analytics world and its impact on global industry. Thinking is driven not by answers but by questions, so I will focus on tools to help you reason through Predictive Analytics and Data Mining issues and problems demonstrating that the subject matter of this course is highly interrelated with that of other business subjects.

COURSE SOFTWARE

In this course you will be using IBM SPSS Statistics, SPSS Modeler, Base SAS, SAS Enterprise Guide, and SAS Enterprise Miner. These will all be available on the SAS cloud, in the lab in BE 215 if you are near campus, or using Citrix from a distance. Citrix can be used on your personal computer so that you can use the SPSS packages from remote locations. If for some reason Citrix doesn't work well for you, then I will provide a source from which you can purchase a grad pack for SPSS.

LINKEDIN: You will be expected to join LinkedIn and connect with me and others in the class. If you have not already done so, you must connect with me no later than the beginning of class on January 29, 2016. I may also create a group on LinkedIn just for the class. We will use LinkedIn to share information, articles, weekly self-selected papers, whitepapers, etc. I will also ask you to join several LinkedIn groups whose focus is on predictive analytics and data mining. Of course when the semester is complete you can drop out of any group you do not wish to continue in. You will be able

to see what industry professionals are contributing and, to the extent you desire, contribute to the discussions. **NOTE**: a Handout on best practices for LinkedIn will be provided

Examinations. There will be two exams during the semester: a mid-term and a final. Both exams will be take home exams that may consist of a written portion and an applications portion – part of the exam may be administered online using D2L and timed. Since the exam will be able to be completed on your own, you will be able to use your notes, readings, etc. Please note, however, that take home exam components meet the same honor code requirements as in-class exams and you may not collaborate with others on the exam. You will be given a minimum of 7 days to complete each exam.

Assignments. In order to reinforce key course concepts, each student will be involved in content-related assignments and exercises. As you can see from the percentage of the course grade, these assignments are critically important to the course.

Please note that while I have no problem with students discussing homework assignments and helping each other with problems (as this is part of the learning process as well), the work turned in must be your work. Simply copying another student's work or re-running their code is unacceptable and in violation with the RU Honor Code. If I suspect that there is an honor code violation, I will assign a grade of zero (0) for that assignment. Any subsequent violations will be handled in accordance with the university honor code system.

All assignments are due at the date and time specified - **no late assignments will be accepted for credit**. While I encourage you to do any missed assignments for your own learning (and because some assignments build upon earlier assignments), you cannot make-up missed assignments for credit. Because of the nature of the course, there will be no additional or extra credit assignments to increase your grade.

Analytics Self-Selected Focus. In addition to the readings assigned for the course, you will be asked to identify an area in predictive analytics and data mining that interests you or you believe will help you in your future career plans. Some areas to consider in analytics include customer acquisition/CRM, marketing, advertising, talent/HR, fraud detection, real estate, law enforcement, finance, education, banking, web, retail, sports, social, political, etc. (there are other areas as well). You need to pick a single area and focus on this for the semester. Some of you were in Dr. Angela Stanton's class in the fall and had a similar course expectation. If you were in her class you may use the same topic areas BUT YOU CANNOT use the same articles or other materials used to meet her course requirements. Related to this requirement for my course:

- You are expected to join LinkedIn, if you have not already done so, and connect with me and all of your peers in the class (I will provide you with a listing of your colleagues the 2nd week of class). You must be connected with me no later than January 29th. It is important that you begin to use LinkedIn to develop/enhance your professional presence. I encourage you to use LinkedIn effectively by joining groups in your areas of interest so that you can see what industry professionals are contributing and to begin participating in those discussions.
- Provide a **summary** (no more than **600 characters**) on LinkedIn for 1 article you read beginning the week of Feb 2nd. The article must be a recent article written within the last year. You must post the summary no later than Tuesday at 11 p.m. each week (your first summary is due on Feb 2nd). You will do this for 10 weeks (the last submission will be due on April 12th). The summary each week should be engaging and something that makes a person want to read further. In can often be more difficult to post a brief summary that is engaging and descriptive than it is to write a longer summary. As a part of the weekly maximum 600 characters summary, you must also provide a link to the article. Because of problems with posting URLs to LinkedIn in their native form, you will need to use http://tinyurl.com or https://bitly.com to shorten your URL to something manageable and something LinkedIn will allow people to click through. Note: the URL counts as part of the LinkedIn maximum character allowance. **In addition to posting the summary on LinkedIn, you must also email it to me before the 11 p.m. deadline on Tuesday each week (you**

can simply copy what you posted to LinkedIn and paste it in an email to me) as I receive many items on my LinkedIn feed and I don't want to miss it.

- At the end of the semester, you will be expected to use the weekly self-selected articles to assemble your **Analytics Individual Paper.** The guidelines for the paper are at the end of the syllabus (after the semester schedule). The paper will be due via email no later than 11 p.m. on Tuesday, April 19, 2016.

READINGS: Background readings from the two required texts, contemporary articles from industry leaders, academic journal articles, PowerPoint presentations, videos, YouTube tutorials, SAS and SPSS materials, and hands-on utilization of software will provide the foundational knowledge of the various Predictive Analytics and Data Mining techniques covered this semester.
Any additional readings or changes in the schedule will be posted to D2L.

INDIVIDUAL ASSIGNMENTS: In addition to the readings, you will also be asked to individually complete a number of in-class (Lab) and out-of-class assignments. **NOTE:** All out-of-class assignments (group or individual) are due at the beginning of class on the date specified - **no late assignments or projects will be accepted**. While I encourage you to do any missed assignments for your own learning (and because some assignments build upon earlier assignments), you cannot make-up missed assignments for credit – this includes both out-of-class assignments and in-class assignments/activities. Because of the nature of the course, there will be no additional or extra credit assignments to increase your grade.

Please also note that while I have no problem with students discussing individual homework assignments and helping each other with problems (as this is part of the learning process), the work turned in for credit must be **your** work. Copying another student's work is unacceptable and in violation of the *RU Honor Code*. If there is an honor code violation, I will assign a grade of zero (0) for that assignment and report the honor code violation to the Dean of Students Office.

STUDENT ENGAGEMENT, PARTICIPATION, AND PROFESSIONALISM

Your final class engagement grade for the semester will be based on a review of your synchronous class participation and overall professionalism for the semester. In order to reinforce key course concepts, you will be also be expected to complete and submit content-related assignments and exercises.

COURSE EVALUATION, GRADING & IMPORTANT DATES: You will be evaluated on your knowledge of Predictive Analytics and Data Mining concepts as well as your ability to apply that knowledge effectively to typical business issues, situations, problems and opportunities. Your performance will be evaluated by several means including: examinations; in- and out-of- class assignments (both group and individual); Final Individual Paper; and your engagement, participation and professionalism in the class. Specifically, the weights assigned to each of these performance measures (as well as the associated dates) are:

- Submitted Assignments including weekly self-selected article (25%)
- Student Engagement, Participation, and Professionalism (5%)
- Mid-Term Exam (25%)
- Final Individual Paper (15%)
- Final Exam (30%)

Your final grade will be strictly determined as follows:

93 – 100	A
90 – 92.99	A-
87 – 89.99	B+
83 – 86.99	B
80 – 82.99	B-
70 – 79.00	C
Below 70	F

SEMESTER SCHEDULE

NOTE: topics, readings and dates are approximate and may change. If unexpected circumstance result in the need to make adjustments to the syllabus at any time during the semester, I will inform you. It is your responsibility to keep track of scheduled assignments and examinations, any changes in these dates, material covered in the class, and all other announcements. I will post any changes to the course D2L site.

Week	Date	Requirement
1	19-Jan	Introduction, Syllabus, and PPT posted in D2L
2	26-Jan	Measurement; Choosing the Appropriate Analytical Technique to support Data Mining and Predictive Modeling; PPT; and materials posted in D2L
3	2-Feb	Issues with data, e.g., Skewness, Kurtosis, and Multicollinearity; Using software appropriate to Data Mining and Predictive Analytics; PPT; and materials posted in D2L
4	9-Feb	Data Exploration, Descriptive Statistics, and Frequencies; Crosstabulation; PPT; and materials posted in D2L
5	16-Feb	T-Test and ANOVA; Correlation Analysis and Intro to Factor Analysis; PPT; and materials posted in D2L
6	23-Feb	Factor Analysis Continued; PPT; and materials posted in D2L
7	1-Mar	Cluster Analysis; Factor Mapping; PPT; and materials posted in D2L
Spring Break 5 March – 13 March		
9	15-Mar	Regression Analysis; PPT; and materials posted in D2L. **Mid-Term Exam due in dropbox before the beginning of class**
10	22-Mar	Logistic Regression; Lift and Gains Charts; PPT; and materials posted in D2L
11	29-Mar	Discriminant Analysis; Discriminant Mapping; PPT; and materials posted in D2L
12	5-Apr	Classification and Regression Trees; Introduction to Modeler and Miner; PPT; and materials posted in D2L
13	12-Apr	Catch Up day; Q&A
14	19-Apr	Final Individual Paper due; Combining all the techniques; PPT; and materials posted in D2L
15	26-Apr	TBD
	3-May	**Take Home portion of the Final exam due no later than 5:00 p.m.**

Read by	Readings
26-Jan	1. Schmarzo, "Business Analytics: Moving From Descriptive To Predictive Analytics"(posted on D2L) (6 pages); 2. Guazzelli, "Predicting the future, Part 1: What is predictive analytics?" (posted on D2L) (9 pages); 3. Guazzelli, Predicting the future, Part 2: What is predictive analytics?" (posted on D2L) (11 pages); 4. Kantardzic, Data Mining: Concepts, Models, Methods, and Algorithms, Second Edition, Appendix B (posted on D2L) (14 pages);
2-Feb	1. Linoff & Berry, Introduction, (3 pages); 2. Linoff & Berry, Chapter 1 What Is Data Mining and Why Do It?, (26 pages); 3. Isson & Harriott, Preface, (2 pages); 4. Isson & Harriott, Chapter 1 The Challenge of Business Analytics (14 pages) 5. Isson & Harriott, Chapter 2 Pillars of Business Analytics Success: The BASP Framework (19 pages)
9-Feb	1. Berson, Smith and Thearling, "An Overview of Data Mining Techniques" (posted on D2L) (46 pages); 2. Linoff & Berry, Chapter 2 Data Mining Applications in Marketing and Customer Relationship Management, (40 pages)
16-Feb	1. Linoff & Berry, Chapter 3 The Data Mining Process., (34 pages); 2. Isson & Harriott, Chapter 3 Aligning Key Business Challenges across the Enterprise, (16 pages); 3. Isson & Harriott, Chapter 4 Big and Little Data: Different Types of Intelligence, (26 pages)
23-Feb	1. Linoff & Berry, Chapter 4 Statistics 101: What You Should Know About Data, (50 pages); 2. Linoff & Berry, Chapter 5 Descriptions and Prediction: Profiling and Predictive Modeling, (44pages); 3. Isson & Harriott, Chapter 5 Who Cares about Data? (18 pages); 4. Isson & Harriott, Chapter 6 Data Visualization: Presenting Information (18 pages)
1-Mar	1. Linoff & Berry, Chapter 15 Market Basket Analysis and Association Rules., (46 pages); 2. Linoff & Berry, Chapter 18 Building Customer Signatures, (38 pages); 3. Isson & Harriott, Chapter 7 Analytics Implementation: What Works and What Does Not (18 pages); 4. Isson & Harriott, Chapter 8 Voice-of-the-Customer Analytics and Insights (18 pages)
15-Mar	1. Linoff & Berry, Chapter 20 Too Much of a Good Thing? Techniques for Reducing the Number of Variables, (40 pages); 2. Linoff & Berry, Chapter 21 Listen Carefully to What Your Customers Say: Text Mining, (46 pages); 3. Isson & Harriott, Chapter 9 Leveraging Digital Analytics Effectively (34 pages); 4. Isson & Harriott, Chapter 10 Effective Predictive Analytics: What Works and What Does Not (24 pages)

Read by	Readings
22-Mar	1. Linoff & Berry, Chapter 6 Data Mining Using Classic Statistical Techniques, (42 pages); 2. Linoff & Berry, Chapter 19 Derived Variables: Making the Data Mean More, (42 pages); 3. Isson & Harriott, Chapter 11 Predictive Analytics Applied to Human Resources (24 pages) 4. Isson & Harriott, Chapter 12 Social Media Analytics (24 pages)
29-Mar	1. Linoff & Berry, Chapter 9 Nearest Neighbor Approaches: Memory-Based Reasoning and Collaborative Filtering, (36 pages); 2. Linoff & Berry, Chapter 13 Finding Islands of Similarity: Automatic Cluster Detection, (40 pages); 3. Linoff & Berry, Chapter 14 Alternative Approaches to Cluster Detection, (36 pages); 4. Isson & Harriott, Chapter 13 The Competitive Intelligence Mandate (14 pages) 5. Isson & Harriott, Chapter 14 Mobile Analytics (16 pages)
5-Apr	1. Linoff & Berry, Chapter 7 Decision Trees., (44 pages); 2. Linoff & Berry, Chapter 8 Artificial Neural Networks., (40 pages); 3. Isson & Harriott, Chapter 15 Effective Analytics Communication Strategies (20 pages) 4. Isson & Harriott, Chapter 16 Business Performance Tracking: Execution and Measurement (22 pages)
12-Apr	1. Linoff & Berry, Chapter 10 Knowing When to Worry: Using Survival Analysis to Understand Customers, (40 pages); 2. Linoff & Berry, Chapter 11 Genetic Algorithms and Swarm Intelligence, (32 pages); 3. Isson & Harriott, Chapter 17 Analytics and Innovation (16 pages)
19-Apr	1. Linoff & Berry, Chapter 12 Tell Me Something New: Pattern Discovery and Data Mining, (30 pages); 2. Linoff & Berry, Chapter 16 Link Analysis., (32 pages); 3. Isson & Harriott, Chapter 18 Unstructured Data Analytics: The Next Frontier (18 pages)
26 - April	1. Linoff & Berry, Chapter 17 Data Warehousing, OLAP, Analytic Sandboxes, and Data Mining, (42 pages); 2. Isson & Harriott, Chapter 19 The Future of Analytics (14 pages)