I. **General Information**

Course number: MKTG 675  
Title: Seminar in Marketing Analytics  
Units: 3 credits  
Prerequisite: IS 601  
Course Coordinator: Reo Song  
Date Prepared: September 2015

II. **Catalog Description**

Marketing Analytics is a scientific approach that connects customer data and competitive information to drive strategic decision making in modern enterprises. The course explores customer data analysis techniques and their theoretical foundations that are applied to real world business problems. The ethical implications related to collecting and utilizing customer data are examined. Letter grade only (A-F).

III. **Curriculum Justification**

Marketing analytics increasingly plays an essential role in business decision making with heightened demand for data analysis skills in this age of Big Data. The exponential growth and availability of data, both structured and unstructured, has spawned many challenges that include analysis, data curation, aggregation and data management, storage, transfer, data destruction, visualization, and information privacy.

IV. **Course Objectives**

- **Customer data analysis:** Students will learn and implement the various steps needed to obtain insights from customer data analysis. These steps include defining research questions, collecting and manipulating relevant customer data, conducting appropriate analyses, and interpreting analytic results.
- **Theories on statistical analysis of customer data:** Students will learn the underlying statistical and customer theories to apply a proper analysis method to given research questions and types of customer data.
- **Critical thinking:** Students will develop the ability to critically evaluate business situations, to tackle the research problem, and to determine the most appropriate analytical method.
- **Strategic thinking:** Students will demonstrate how to gain insight from the analysis of data and to recommend a proper business strategy based on empirical evidence.
- **Data analysis software:** Students will learn a statistical software package appropriate to handle customer data such as Stata, R, SAS, Matlab, and SPSS.
V. **Outline of Topics**

The topics listed below must be included in the course. Additional topics can be added into the course based on the instructor’s personal preferences in teaching this course.

1. Introduction to marketing analytics, predictive analytics, and “Big Data”
2. Basics of a statistical software package: How to import, clean, and manipulate data for analysis
3. Linear regression for prediction
4. Logit: Segmentation and targeting through customer choice analysis
5. Time series analysis for forecasting: Autoregressive model and/or exponential smoothing
6. Information privacy and related ethical issues/implications

The following topics can be added (not limited to these):

- Prediction study design
- Social media analytics: Text mining and sentiment analysis
- Machine learning: Decision trees, Bagging, Random forests, Boosting, Regularized regression, Cluster analysis, etc.
- A/B testing: Hypothesis testing
- Price elasticity and pricing strategy
- Customer lifetime value (CLV)
- New product analytics: Conjoint analysis

VI. **Methods of Instruction**

A. The course should include the following components:

1. In-class data analysis exercises
2. Case analysis assignments with real world data: Case writing to recommend a proper course of action based on analytic results
3. **Course group project:** Define business problem, collect and clean data, conduct a statistical analysis, and recommend a course of action. A group presentation should be required. Data analysis project with a client can be accommodated as this group project. Project requirements include:
   a. The primary data should be large scale secondary data with sample size of N > 300.
   b. Regression-based methods should be included (e.g., linear regression, logit, time series analysis).
   c. Statistical models can be developed for descriptive (describe some phenomenon) and/or predictive (predict behaviors or events) purposes.
   d. Training vs. test data approach should be used for forecasting.
4. **Examinations:** Should include questions that use a software package to analyze data. Formats should require students to demonstrate critical thinking and application/problem solving skills. Multiple choice exams are not allowed.

B. There is no standardized textbook. The following (free) textbook can be recommended as a reference:
C. The following articles are suggested as an introduction:

- “Marketing As Strategy: Understanding the CEO’s Agenda for Driving Growth and Innovation,” Nirmalya Kumar, Harvard Business Press 2004

D. The following sources provide many useful analytics cases with business data:

- Darden Business Publishing, University of Virginia: store.darden.virginia.edu/
- Ross School of Business, Global Lens, University of Michigan: wdi-publishing.com/
- INSEAD Case Publishing: cases.insead.edu/publishing/
- Ivey Cases, Western University: www.iveycases.com/Default.aspx
- Kellogg Case Publishing, Northwestern University: www.kellogg.northwestern.edu/kellogg-case-publishing/case-search.aspx
- Stanford Graduate School of Business: https://www.gsb.stanford.edu/faculty-research/case-studies

VII. Instructional Policies

A. Grading Policy

- Final course grades shall be based on at least three (3), and preferably four (4) or more, demonstrations of competence by the student. In no case shall the grade on any single demonstration of competence count for more than one-third (33%) of the final course grade. See academic senate policy: (www.csulb.edu/divisions/aa/grad_undergrad/senate/documents/policy/2005/07/)

B. Policy on Classroom Behavior

- All cell phones & other electronic devices (e.g. pagers, iPads, iPods, PDAs) must be put on vibrate or turned off and not on your desk during class.
- Students are responsible for what transpired if they miss a class. It is the student’s responsibility to contact the instructor or a classmate to determine what was missed. See “Policy on Make-up Exam and Assignments” below.
- Talking and other disruptive behavior are not permitted while classes are in session.
C. Policy on Make-up Exams and Assignments
   o The instructor develops his or her own policy.

D. Policies on Withdrawal, Late Withdrawals, and Incompletes
   o The University policy on dropping and withdrawal from classes is set forth in the
     schedule of classes. Students are obligated to officially withdraw from their courses
     even though they may not have attended. Withdrawals require the signature of the
     instructor, the chairperson, and the Dean of the CBA.

E. Academic Integrity
   o Students are expected to do original work for all assignments, including exams.
   o Students are responsible for their own conduct and all cases of dishonesty (e.g.,
     plagiarism, cheating) will be reported to the proper university officials.
   o Students are expected to adhere to CBA (www.csulb.edu/colleges/cba/dean/academic-
     integrity/) and University policies regarding Academic Integrity
     (www.csulb.edu/divisions/aa/grad_undergrad/senate/documents/policy/2008/02/).

F. Campus Computer/Network Usage
   o Careful and ethical use of computing resources is the responsibility of every user. As a
     user of these resources, you agree to be subject to the guidelines of the “Policy
     Governing Access to and Use of CSULB Computing Resources”. These guidelines
     apply to all computing resources provided by the University; some guidelines are
     more directly related to time-sharing systems, some to microcomputers and local area
     networks, and some to all systems.

G. Disabilities
   o Students with disabilities are responsible for notifying their instructor as early as
     possible of their needs for an accommodation of a verified disability. A student with a
     disability is urged to consult with Disabled Student Services as soon as possible in
     order to identify possible accommodations to enhance academic success.