Marketing 3597: Marketing Analytics

Leavey School of Business
Santa Clara University

Fall 2017

INSTRUCTOR CONTACT INFORMATION

Professor: Dr. Xiaojing Dong

Office: 321C, Lucas Hall

Phone: 408-554-5721 (408-554-4580 for Marketing Department Admin)

Email: xdong1@scu.edu

Office hours: Saturdays right after class or by appointments

COURSE DESCRIPTION

The past couple of decades have witnessed an unprecedented "explosion" of data availability, due largely to advances in computing and storage technologies. More and more success stories have been reported in books and newspapers, elaborating on how companies benefit from decisions made on the basis of data analysis. Such news has attracted more companies to look for analytic talent capable of sifting through data with statistical models and translating it into guidance for business decisions.

This course is designed in response to the need for analytic talent in the marketplace. The overarching purpose of this course is to convey the benefits of a systematic, analytical approach to marketing decision-making, and to build skills, knowledge and confidence in undertaking such analyses.

This course is not a statistic or math course, focusing on pure technical details and equation derivations. It is a Marketing Analytics course, aiming to prepare future managers who (1) appreciate the importance of competitive advantages leveraged by analytics; (2) understand the existence of the tools, the advantages and limitations of each tool; and (3) can apply these tools, interpret the input and communicate the output from these tools and models, and apply them to assist business decisions.

LEARNING OBJECTIVES

After taking this class, students will:

1. Understand how to apply mathematical models such as factor/cluster analysis, perceptual map, choice modeling, Bass model and Bayes theory to support marketing decisions.
2. Be able to evaluate the consequences of marketing decisions systematically and analytically.
3. Apply factor/cluster analysis and perceptual mapping to such marketing decision problems as segmentation, targeting and positioning decisions
4. Analyze forecasting models and understand their limitations and data requirements.
5. Understand Binary and Multinomial choice modeling, and apply them in assisting marketing decisions.
6. Understand Bayes theory and its application in the context of marketing data analysis and experimental design.

"Why Marketing Analytics? Don't I know enough about Marketing already?"

This course zooms beyond MKTG 3551 course in several concrete ways, but mainly in terms of *operationalizing* marketing concepts like segmentation, targeting, positioning, and marketing sales forecasting. By the end of this course, you will be able to extract information in the ways marketers are increasingly required to, for example, to: segment customers and markets, identify attractive targeting prospects, determine the best brand positioning in customers' minds, develop new products that add value to consumers and firms… and more. But, most of all, you will become adept in systematizing decision-making based on powerful, proven analytical techniques.

We will cover a substantial amount of modeling methodology, including such topics as factor / cluster / conjoint / discrete choice analyses, heterogeneity, discrete choice and Bayesian models, etc. We will NOT be approaching these topics theoretically, that is, via equations, proofs and other things most people hate. Instead, we'll learn how they work, when to use them, and what they tell marketers.

"How does Marketing Analytics differ from the Marketing Research course?"

Marketing Research focuses on primarily consumer / customer data collection. Marketing Research is an appropriate class for those individuals who serve in or are exposed to the marketing research function in a firm. For example a product marketing or an advertising manager, whose core job is product marketing or advertising but needs customer research to support decisions. This research will often be outsourced or conducted by a corporate marketing group. The product or advertising manager needs to be an informed consumer of this research and the marketing research course educates for this role.

The Marketing Analytics course on the other hand is aimed at building causal models (not brute force data mining) to already available data and is less oriented around the gathering of data. Many marketing managers want a model-building approach to analyzing and understanding reams of data, utilizing easy to use software such as Excel. Today these individuals often work in departments that model data for loyalty marketing, retention or web marketing, etc. This is a sub industry in its own right and aspects of this are sometimes referred to as *business intelligence*.

COURSE STRUCTURE

The basic pedagogical approach is to employ a mix of learning methods, including lectures, class discussions, software tools, cases, and assigned readings. Class sessions will be devoted to probing, extending and applying the material in the readings and the cases. One could call this "Tell-Show-Do", a sequence providing hands-on experience in using the course materials for making marketing decisions. Lectures (always supplemented by the text) will cover the concepts and models you need in order to understand – and to apply – a scientific approach to marketing. Applications are illustrated in the cases, readings, and the examples; the software tools allow for hands-on opportunities to apply the concepts and models to resolve real-life marketing problems.

PREREQUISITES

MKTG 3552.

TEXTBOOK AND COURSE MATERIALS

1. **Suggested text book:** Either one of the following two books is fine:
   1) Marketing Engineering ISBN: 1412022525
   2) Principles of Marketing Engineering, first or second edition

By the same authors: Gary L. Lilien, Arvind Rangaswamy and Arnaaud De Bruyn, Trafford Publishers.

Some of the other materials load automatically with the software, and still more will appear via dedicated Google Drive. Everything will be in PDF, and there will be **no** additional "coursepack".

2. Get ready with your **R programming** environment. Please refer to the handouts on how to get started on that.

CLASSROOM PROCEDURES

Class participation (Individual)

All students should read each case and conduct sufficient analyses to be able to address the questions specified in the case (among others). *Everyone is expected to contribute actively to case discussions, as well as offer elaborations and examples during lecture sessions*. This component of the course will count toward a portion of your course grade (more below).

In evaluating class participation, **quality counts more than quantity**. I will try to assess how your contributions enhance both the *content* and *process* of a discussion.

GRADING

Final grades will be determined according to the following scale:

Class Participation & Quiz:	20 %
Homework:	25 %
Team project:	25 %
Midterm Exam:	30 %

Homework (Individual)
Everyone will submit only **a hard copy** of each individual homework.

Exams and quiz
There will be one quiz and one exam, both exams allow one page of double-sided cheat sheet. The quiz, together with the homework, are serving two purposes: (1) to help you digest and practice the analysis learned in classes; (2) to get you familiarized with the type of questions that will appear in your exams.

Groups
You will be allowed to form your own groups for the purposes of case analyses and course project. Active learning among your team members are critical in your learning processes, and will likely help you get good participation grades. Groups should have about 3-4 members and strive for heterogeneity in composition. You will work with your team members preparing for both the case discussions and the final project. The quality of the case discussions with your team before case classes will certainly influence your participation grades. And the quality of the final project will be an important component of your final grade. A document with detailed instructions about the final project will be distributed separately.

Honor Code
All students are expected to behave ethically. Unethical behavior includes receiving *any* course materials from any source other than the instructor. When in doubt about a particular issue, please ask.

Do not share any materials with any other students or anyone outside of this class without my approval.

Disability Accommodation Policy
To request academic accommodations for a disability, students must be registered with Disabilities Resources located in Benson, room 216. If you would like to register with Disabilities Resources, please visit their office in Benson 216 or call (408) 554-4109. You will need to register and provide professional documentation of a disability prior to receiving academic accommodations. (Revised 9/10)

Tentative Schedule (as of 9/24/17, subject to change)

Week	Day / Date	Topics	Preparation
1	Lecture 1 (9/23)	Course introduction and Review of Basic Statistics	Handouts
2	Lecture 2 (9/30)	Regression Analysis	Handouts
3	Lecture 3 (10/7)	Marketing Mix Modeling	Handouts
4	Lecture 4 (10/14)	Segmentation and Targeting (Cluster, Discriminant)	Chapter 3
5	Lecture 5 (10/21)	Quiz, and Positioning (Perceptual Maps)	Chapter 4
6	Lecture 6 (10/28)	Bass Forecasting Model	Chapter 5
7	Lecture 7 (11/4)	Bayesian modeling	Handouts
8	Lecture 8 (11/11)	Midterm exam	Studying a lot!
9	Lecture 9 (11/18)	Binary Logit Models and CRM	Handouts
10	Lecture 10 (12/2)	MNL Model and Project presentations	