Marketing Analytics

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Course Description

Marketers are truly living in the era of "big data." Technology and marketing innovation has enabled a deluge of information and data points about consumer behavior and consumer relationships with brands. Organizations today expect their marketing executives to come equipped with skills to transform information to insights and insights to shrewd judgment. This course is designed to provide participants with a solid understanding of marketing analytics concepts and how these tools can be used to make better strategic and tactical marketing decisions using models developed by academic and consulting communities over the years.

Through an entirely hands-on approach participants, by the end of the course, will be able to make sense of the information and knowledge available and create marketing strategy and programs based on both quantitative and qualitative factors. Via cases and real-life applications, you will 1) generate operational plans on important marketing decisions such as segmentation, targeting, positioning, marketing resource allocation, forecasting, advertising and sales promotions; 2) master the selection and use of various models and industry standard commercial software, and 3) develop confidence and skills to successfully justify your strategic and tactical marketing decisions using the correct metrics.

Required Course Materials

1. Textbook: Principles for Marketing Engineering (2012, 2nd Edition), Gary L. Lilien, Arvind Rangaswamy, and Arnaud De Bruyn, ISBN: 978-0985764807
2. Cases
3. Other materials and readings provided on the course website or in your binder.

Software

Marketing Engineering for Excel v2.0.5

R Studio

Note: Please make sure both ME-XL and R studio are installed and operational before coming to the first session.

Textbook, ME-XL software and the cases can be obtained from http://decisionpro.biz/. Follow the "students" link and see the step-by-step instructions on the course website for the Access Code.

Course Evaluation Overview

Item:	**Value**
Executive Marketing Challenge (Team)	50%
Analytics Workshop (Team)	15%
Data on-the-Spot (Duo Team)	25%
Participation (Individual)	10%
Total	100%

*All assignments are to be submitted in class the day it is due unless otherwise specified.

COURSE EVALUATION DETAILS

Executive Marketing Challenge (EMC) – Team (50%)

For the term project, each team will be studying a marketing challenge faced by a real organization. You will apply marketing analytics techniques to address the problem, help with a managerial decision with an aim to improve market performance. Your team is flexible to choose any industry, organization and problem for the project but I am always available if you need help narrowing down your choices or other suggestions. The goal of the project is three-fold: 1) apply the marketing analytics techniques learned in class in a real setting, 2) justify your decision using a proper marketing metric and 3) discuss the potential value of taking your "analytics" approach to address the problem.

You will present your project by a report and a presentation. Below are the main guidelines for each deliverable.

Report: (35%)

Each group is expected to submit a report that includes both the technical and the managerial aspects of your work. The following is a suggested outline for your written submission.

1. Executive Summary
2. Introduction: Industry and organization overview; description of the marketing challenge; significance of the decision on firm performance.
3. Data Description: Variables, timeline, source, with descriptive statistics, figures and graphs to enhance your description. Access to real data is preferred; however, you can also use simulations to enrich your dataset (e.g. extend the timeline, add variables, etc.).
4. Method: Model selection, model description, estimation details such as software, assumptions, etc.
5. Results: Discussion and interpretation of the results; managerial implications (i.e. the "so what?" part) supported by proper marketing metrics.
6. Analytics of "Analytics": Quantify the value of the analytical approach to the problem (i.e. compare its market performance outcome to that of a potential benchmark (e.g. an alternative analytics method or a heuristic)).

Written part should be no more than **20 double spaced pages** (plus the Exhibits) with **12 point TNR font** and **1" margins** on all four sides. Feel free to include tables and figures to help you summarize and organize your findings. Communication of your findings and editorial elements of the report will be part of the assessment.

Presentation: (15%)

Each group will give a 12-minute presentation (plus 5 minutes for Q&A) on their Executive Marketing Challenge (EMC). Presentations should be mostly managerial, avoiding all jargons and technical lingos. When preparing, assume you will be presenting to an audience that has little to no knowledge of analytics. (i.e. Can your grandmother understand it?)

Data On-the-Spot (DOS) – Duo Team (24%)

We will have four hands-on data exercises throughout the term. Most of the DOS assignments will require coding in R and are designed to help contribute to your advancement in the software. No preparation is necessary for these and you will be given instructions about the nature of the assignment the day of. You will need to choose a classmate to partner up with beginning of the term and these ***duo teams*** will be fixed for all DOS exercises. You will work on the exercise with your partner and submit a brief report of your analysis and results. The page limit and requirements are DOS specific and will be announced the day of the assignment. The dates for the DOSs are specified on the tentative schedule below. In extenuating cases where one of the *duo team* members is unavailable to join the class on a DOS date, their partners will be allowed to take the lead for that DOS and represent the team. The due dates for each DOS will be provided in class and on the course webpage.

Analytics Workshop (AW) – Team (15%)

We will have three workshops, each focusing on an important marketing topic and utilizing cases and datasets that come with the textbook. Unlike DOSs which are more technical in nature, AWs are intended to focus more on managerial decision making. Teams will work on the workshop task - a data-driven marketing decision on a topic discussed **in a previous meeting** – in class. I will visit each team during the workshop to offer guidance, assistance and generally observe how well you approach the problem. Each workshop challenge will be assigned to one or two teams, which will act as *consultants.* All teams will participate in all workshop sessions but the *consultant* teams **will come to the session having prepared a five-minute presentation** of the results of their analysis, insights and recommendations. Think of the presentation as a tool to convince the class that your recommendation is the best. Your grade for the workshops will mainly be based on your presentation, analysis and actionable insights for the challenge you are assigned to (don't forget to submit your slides); however, my observations of your team during all workshop sessions will also factor in. The workshop topics will be assigned to teams on a first-come first-served basis and the final assignments will be posted on the course webpage.

Participation – Individual (11%)

Active participation is an important determinant of your individual performance. Most of your learning happens as a result of our class discussions; therefore your goal in each session should be to help foster a positive, open-minded and a learning-focused environment. Try to make comments that advance the class discussion so that we can all learn from each other. Quality is obviously more important than the quantity of your comments; although quantity is necessary to reliably judge the general quality to give you a participation grade. I will expect you to attend all sessions with the exception of circumstances outside of your control (e.g. serious health issues, death in the family). Your participation grade will be a comprehensive assessment of your contributions including your in- and out-of-class engagement (e.g. emails, twitter, conference calls, meetings) encompassing all interactions.

GENERAL COURSE POLICIES

General Communication and Slides

The announcements and updates about the course and the slides before each session will be posted on the course webpage. Therefore, make sure you visit the webpage prior to every class to ensure that no important material is missed.

Since marketing is continuously migrating to the online platforms and digital is the cradle of "big data," I will encourage the use of social media throughout the course to share content, ideas and thoughts with each other. When I find content related to analytics applications, data-driven insights, or marketing measurement in general I will share links through Twitter. I will also post course specific announcements and updates with the hashtag **#UCDAnalytics**. Follow @cpluskn on Twitter (https://twitter.com/cpluskn) for the feed. You are encouraged to comment, like, retweet, etc relevant content. You should also feel free to share anything you find on the web that is interesting and relevant to your classmates and use the **#UCDAnalytics** hashtag where necessary. Your social engagement will serve as a bonus for your participation mark. In other words, it is not required but if you find it more comfortable to engage in online discussions you are more than welcome!

Office Hours

The times for office hours will be announced closer to the beginning of the term. However, you can always email, tweet or call me, if you would like to set up other times to meet. We can always Skype or Hangout!

Readings

Every student is expected to have completed all the readings designated for each session **prior to coming to class**. Some of the material will be from the textbook and some will be additional articles relevant to that day's topic. Please refer to the schedule of this syllabus (p. 7&8) for reading assignments for each session. Your learning will be **severely inhibited** if you have not done the readings, since I will use the class time to **complement the readings** and do hands-on exercises rather than repeat what they already cover.

Tentative Course Schedule

Week	Date	Concepts Covered	Deliverables/Notes	Readings
1	October 1st, 2015	Course Introduction: Content & Method & Administration Data-driven Marketing & Marketing Metrics Market Response Models	Download and Install ME-XL Software Download and Install R Studio HOA[1]: The Next Big Show DOS1: Response Model Simulation (Excel)	LRB, Chapter 1
2	October 8th, 2015	Identifying Drivers of Outcomes: Linear Models (Interactions, over-fitting, holdout prediction) Customer Lifetime Value (CLV)	Personal Information Form Due DOS2: Regression and Model Selection (R)	LRB, Chapter 2 R Tutorial (Install R and go thru the tutorial hands-on) CLV ME-XL Tutorial & Office Star Example
3	October 15th, 2015	Advanced Topics in Regression (Logistic & Bayesian & Hierarchical) Choice Models	CLV Workshop (#1) & AW Presentations	"Northern Aero CLV" Case (AW #1) Choice Modeling Technical Note Customer Choice ME-XL Tutorial & Office Star Exmp.
4	October 22nd, 2015	Segmentation: Clustering & Classification	DOS3: Segmentation & Clustering (R)	LRB, Chapter 3 Segmentation Technical Note
5	October 29th, 2015	Positioning & Factor Analysis	Choice Workshop (#2) & AW Presentations	LRB, Chapter 4 "Book Binders Book Club" Case (AW #2) Positioning ME-XL Tutorial & Office Star Exmp. Positioning Technical Note
6	November 5th, 2015	Advertising Decisions New Product Forecasting	DOS4: Bass Model	Advertising Technical Note LRB, Chapter 5 Bass Model Technical Note Bass Model ME-XL Tutorial & Office Star Exmp

[1] Hands on Application

7	November 12th, 2015	Resource Allocation & Return on Investment	Advertising Workshop (#3) & AW Presentations	"Blue Mountain Coffee" Case (AW #3) Resource Allocation ME-XL Tutorial & Office Star Ex. Resource Allocation Technical Note
8	November 19th, 2015	Digital Analytics: Text Analytics & Paid Search Advertising	HOA: Sentiment Analysis in R	
9	December 3rd, 2015	Conjoint Analysis and New Product Design (NPD)	HOA: New Frozen Meal	LRB, Chapter 6 Conjoint Design ME-XL Tutorial & Office Star Example Conjoint Design Technical Note
10	December 10th, 2015	Marketing Executive Challenge Presentations		