Digital and Algorithmic Marketing (37304)
Course Overview & Syllabus

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Course Overview

Marketing is a changing. Strategic and tactical decisions are increasingly being made with the help of computational and algorithmic tools and in many cases these tools are the real source of competitive advantage. While humans continue to play a key role - the definition of this role is different from what it used to be. In this course we will focus on this new landscape, how it interfaces with traditional marketing and how we need to prepare for it.

The course will delve into various aspects of marketing management with an emphasis on understanding the role of algorithms in increasing firm value. While many of the ideas, tools and techniques discussed in this course have wider applicability in the offline world and across other functional areas the focus in this course will be on online and digital marketing applications.

Pedagogy

The course will involve lectures and discussions, hands on in-class assignments and interactions with industry experts. The course will strive to balance the practical aspects of algorithmic marketing with a theoretical understanding of the concepts and frameworks involved. Each class will have a lecture/discussion portion as well as a practicum/exercise/demo portion. In addition there will be a course projects where we will work on the development of an algorithmic marketing product.

Prerequisites

This course has two prerequisites - 37000 (Marketing Strategy) and 41000 (or 41100) (Statistics). The course can be taken concurrently with the pre-requisite courses. In some rare circumstances, the pre-requisites can be waived entirely, but only when I am convinced the student has extensive knowledge of the material covered in one of the courses.

In addition, to the above students will also benefit from having completed other marketing courses (Pricing, Data Driven Marketing) and other courses at Booth that deal with data and computing (e.g. Big Data). These are, however, not required.

Computing

This is an applied course and we aim to use, understand and develop algorithms that help managers make better decisions. Portions of this course will be hands on and I will be using **R** (www.rproject.com) to demonstrate and apply the methods, concepts and tools we discuss in class. As such, some prior

familiarity with **R** will be useful although it is not required. If you are unfamiliar with R, I suggest that you install the open source (read free) software and familiarize yourself with the basic operations. In particular, I suggest you install

R (https://cran.r-project.org/) as well as
RStudio IDE (https://www.rstudio.com/products/rstudio-desktop/)

You should do this prior to the first class and get acquainted with the interface. There are a number of online resources to help you get started I have collected a few here

- TryR code school tryr.codeschool.com.
- DataCamp: www.datacamp.com/courses/free-introduction-to-r
- Tutorials and resources at data.princeton.edu/R and www.ats.ucla.edu/stat/r/
- Google Developers R Course
  http://www.youtube.com/playlist?list=PL0U2XLYxmsIK9qQfztXeybpHvru-TrqAP

Schedule of Topics

A tentative list of topics that we will seek to cover in class is listed below (this is subject to change) . A more detailed schedule is appended to the end.

1. The Digital and Algorithmic Landscape
2. The Digital Consumer
3. Product Recommendation Systems
4. Matching Algorithms
5. Content and Message Optimization
6. Programmatic Advertising
7. Price Customization
8. Project Presentations
9. Multichannel Attribution

Evaluation

Class Participation:	10%
Individual Assignments (3):	30%
Group Assignments (3):	30%
Final Project:	30%

Class Participation:

Attendance and participation in class is required. There will be a set of randomly announced in-class recap quizzes (don't worry you cant fail these) that will be graded on a check/check+ basis. If you are not in class you will receive no grade for this quiz. There will be four/five such quizzes and I will take the best three to determine your score in addition to a subjective evaluation of your participation in class. There will be absolutely no make up for these quizzes. Note: Those students seeking provisional grades must ensure that they complete three of the quizzes before the provisional grades are due.

Homework Assignments

There will be three (3) individual and three (3) group assignments. All assignments are to be submitted online (chalk) before the beginning of class. Late submissions will not be accepted. If your team has individuals across sections then the assignment is due in the earlier section. There are no exceptions.

There will be homework due each week from weeks 3 through 8 as follows

Group Assignments: Due in sessions 3, 5 and 7
Individual Assignments: Due in sessions 4, 6 and 8

All homework assignments will be outlined in the class slides from the prior week. In other words, the homework due in session 3 will be made available in the materials of session 2.

Course Project

The course will have a live project that takes students through the process of working through the developments and testing of an algorithmic product. More details will be made available in class on April 24th.

Initial project reports and a presentation deck are due on May 22. All teams will receive feedback on their projects by May 29th. Final project reports will be due June 5th.

Groups

Groups for each team should comprise of 4 to 5 individuals. Students may form teams across sections but only if special circumstances/constraints exist. Remember, cross-section teams will need to submit assignments in the earlier section. Teams are due at the beginning of class in week two. You will need to email the TA (details in class) prior to that with your team composition. I would suggest that at least one member of the team have reasonable familiarity with **R**.

Chicago Booth Honor Code

Students are required to adhere to the standards of conduct in the Chicago Booth Honor Code and the Chicago Booth Standards of Scholarship. The Chicago Booth Honor Code requires each team member to sign the Honor Code pledge:

"I pledge my honor that I have not violated the Honor Code in preparation of this case assignment / group project."

Teams may type this honor code on the opening page of each group assignment that they hand in and members may sign individually.

Re-grade Policy

If you believe an error has been made in grading your assignments, you may request a re-grade. The request must be in writing, must explain the exact concern, and must occur within 7 calendar days of when the graded materials were returned or when the final course grade is posted. I reserve the right to re-grade the entire contents of any submitted assignment. This means that your grade may go up or down, depending on what is found during the re-grade.

Course Outline (Subject to change)

Session	Date	Topic	Company Focus	R Session
1	March 27, 2017	The Digital and Algorithmic Landscape	Liveramp	Consumer Model and Optimization
2	April 3, 2017	Digital Audiences	Facebook (Audiences)	Lookalike Models
3	April 10, 2017	Recommendation Systems	Netflix	Collaborative Filtering and Association Rules
4	April 17, 2017	Ranking & Matching Algorithms	OKCupid	Matching
5	April 24, 2017	Personalization & Content Optimization	Persado	Optimizing Content
6	May 1, 2017	Programmatic Advertising**	AOL	Advertising Metrics
7	May 8, 2017	Price Customization	Ziprecruiter	Targeted Pricing
8	May 15, 2017	Multi Touch Attribution	Google 360/AOL	MTA
9	May 22, 2017	Advances and Performance Monitoring	IBM Watson	Brand Monitors Deep Learning
10	May 29, 2017	Memorial Day (Project Work)	-	-
11	June 5, 2017	Final Project Due	-	-