MKTG 212: Data and Analysis for Marketing Decisions

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Professor Office Hours:

Teaching Assistants:
TA Virtual Office Hours:

Course Description

This course introduces students to the fundamentals of data-driven marketing, including topics from marketing research and analytics. It examines the many different sources of data available to marketers, including data from customer transactions, surveys, pricing, advertising, and A/B testing, and how to use those data to guide decision-making. Through real-world applications from various industries, including hands-on analyses using modern data analysis tools, students will learn how to formulate marketing problems as testable hypotheses, systematically gather data, and apply statistical tools to yield actionable marketing insights.

Course Goals

By the end of this course, you should be able to:
- Ask quantifiable questions about marketing decisions
- Know what data exist or can be gathered to answer marketing questions, and understand which kinds of questions these sources can answer
- Understand and apply statistical tools for answering many marketing questions
- Create experiments and statistical models for marketing analytics
- Intelligently discuss recent advances in marketing research and analytics, including machine learning, recommendations, and personalization

Course Policies and Requirements

- **Format:** For the spring of 2021, this class will be virtual. Lectures and office hours will be held on Zoom. You may attend the lectures live, during any of the assigned lecture times, or watch the recordings. (*Important: if you choose to watch the recordings, rather than attend the*

live lectures, you still must respond to the Poll Everywhere polls by 11:59 PM ET the night before the next lecture. For more details, see the Participation section of this syllabus.)

- **Prerequisites:** Introductory statistics (e.g., STAT 101/102), and introductory marketing.

- **Textbook:** There is no required textbook. There are two optional textbooks:
  - *R for Marketing Research and Analytics* by Chapman and Feit (CF on syllabus) (Available digitally through the library.)
  - *Marketing Research* by Aaker, Kumar, Leone, and Day (AKLD on syllabus)

- **Canvas:** This course will rely heavily on Canvas. All announcements will be made through Canvas, all readings, lecture slides, and recordings will be posted on Canvas, and all homework submissions and exams will be done through Canvas.

- **Lecture slides and recordings:** I will post the slides before lectures whenever possible, and all lectures will be recorded. However, I encourage you to take your own notes, or simply engage with the live lecture, rather than following along on the slides: a "heads-up" learning experience can be tremendously valuable. You can always check the posted slides and recording after class.

- **Grades:** Grades will be posted on Canvas when ready. Do not email asking for your grade.

- **Required Software:** Excel (with Analysis ToolPak), R
    (see Software section of the syllabus for more details)

- **Readings:** There are a few required readings and podcasts, marked in bold on the syllabus. These are typically very short and will be posted on Canvas. Please read/listen to them *before* coming to class. (I promise they're entertaining.)

- **Assignments:** All assignments should be submitted to Canvas. ***No late submissions will be accepted***, and there are no make-up assignments.

- **Questions and Piazza:** All questions about the assignments, exams, and lecture content should be posted on Piazza. Please do not email the professor or TA. If you have a question, chances are others do too, and we can help everyone by addressing questions online. For the fastest reply to any other questions, please email the whole teaching team at our course email: mtkg.212.712.2021@gmail.com

- **Poll Everywhere:** We will use Poll Everywhere for class participation, and to track attendance. *You must create a Poll Everywhere account, and use that account when you participate, for your participation to be recorded.* I will send instructions on how to create a participant account early in the semester.

Software

In this class, we will make extensive use of two of the most popular data analysis tools in practice: Microsoft Excel and the R statistical programming language. Becoming familiar with these tools is fundamental to marketing research and analytics. If time permits, we may also explore other tools.

I will assume you have some basic familiarity with Excel. I will not assume you know anything about R. For all tools, the examples we use in class will be posted to Canvas, as well as step-by-step tutorials showing you how to carry out the analyses. Assignments will primarily entail replicating these analyses in new settings. This is not a coding class!

I will demonstrate all analyses in class using R or Excel. You may use whatever software you like to do homework (e.g., R, Excel, Python, JMP, Stata), but I can't offer help for programming languages besides Excel and R. Instructions on downloading and setting up R will be available on Canvas. Please email me if you do not have access to Excel.

Deliverables and Grades

The final course grade will be determined by:
- 50% - Exams
    - 20% = Midterm (your better score of two)
    - 30% = Final exam
- 30% - Assignments
- 10% - Online quizzes (graded for completion; miss up to 2 with no penalty)
- 10% - Course participation

Grades will always be posted to Canvas when ready. Do not email asking for your grade.

Exams

There will be three exams—two midterms and one final—that test your comprehension of course concepts. These are individual, open book, Canvas-based exams. The final will occur during the regularly scheduled final exam period and is cumulative. All three exams will be administered through Canvas. Of the two midterms, only the higher score will count toward your final grade. Note that this policy only applies to the midterms; the final exam will count for everybody. **No coding (Excel or R) will be required during the exams**.

Because the midterms are take-home, and because only the higher of your two scores counts, there will be **no make-up midterm exams or extensions, no exceptions**.

To ensure no student has an unfair advantage, I will stop responding to questions related to exam content at 11:59 PM ET the day before the exam is available. Make sure you post questions significantly ahead of this time if you want me or the TAs to reply.

Only SDS-approved exam accommodations will be accepted, **no exceptions**. If you have SDS-approved exam accommodations, it is your responsibility to make me aware of these, and to make sure they appear in Canvas before taking your exams.

Assignments

There will be several assignments which will focus on applying the ideas and methods learned in class. Often, these assignments will involve working with real company data. As mentioned above, you may use whatever tool you like to do these assignments (including Excel and R). However, if you use something other than Excel or R, we can't provide support.

You have the option of working in a group for all of the assignments. Groups may be up to five students, from any of my course sections. You may also work individually. There is no need to stay with the same group for all of the assignments. Groups must be reported to the TAs at least one week before the assignment is due. One person from your group should email the TAs the full list of group members, with names as they appear on Canvas, by 11:59 PM one week before the assignment is due. Once your group is sent to the TAs, you may not change your group for that assignment.

You should submit your group to the course email: mktg.212.712.2021@gmail.com

If you do not submit a group to the TAs at least one week before the assignment is due, then we will assume you are doing the assignment on your own. We will not carry-over the groups from assignment to assignment.

Quizzes

These will be given most weeks on Canvas. The questions are based on the content of that week's lectures. **They are always due on Sunday at 11:59PM on Canvas**. They are graded for completion, and you can miss up to two quizzes without penalty. These quizzes are designed to help you prepare for the exams and will contain questions *very similar* to the exam questions. They will also help me assess whether everyone is comfortable with that week's lecture content.

Participation

Students can earn participation points in three complementary ways:

1. By simply coming to class, and responding to the in-class surveys using Poll Everywhere. **You do not have to come to your assigned lecture; you may attend any of my three sections.** If you come to every lecture, and respond to all of the polls, you will get full participation points. You may miss up to three classes with no penalty, for **any reason**. After that, each absence will detract from your participation score.

2. By watching the recorded lectures in a timely fashion. Specifically, the Poll Everywhere poll that I use to track participation will stay active until the next lecture. That means, if you want your participation to be recorded, you should watch the lecture and respond to the poll no later than 11:59 PM ET the night before the *next* lecture. For example, if you miss Monday's class, you should watch the recording and respond to the poll before 11:59 PM ET on Tuesday. The poll will reset for Wednesday's lecture.

3. By actively engaging with the class during in-class discussions, or on Piazza. Over the semester, the TAs and I will track who is actively and consistently participating in class discussions, as well as who is responding to questions and actively participating on Piazza. Doing so will improve your participation score, even if your attendance is less than 100%.

Grade Cut-offs

There is no curve. I am happy to award an A to anyone who has earned it. The <u>tentative</u> cut-offs for determining your final letter grade are:

A   93.00%
A-   90.00%
B+   87.00%
B   83.00%
B-   80.00%
C+   77.00%
C   73.00%
C-   70.00%
D   60.00%

These are the *lowest possible scores* to achieve each letter grade. A+ will be awarded at my discretion only. In the past, A+ was given for achieving a high total score (>97%), together with actively attending and participating in class.

Course Schedule

bold = deliverable/required

AKLD = Aaker, Kumar, Leone, and Day textbook; CF = Chapman and Feit textbook

<u>Readings/Podcasts</u>

Module 1: Foundations of Data and Analysis

1/20	1.	Course Introduction	*AKLD Ch. 3-4*
1/25	2.	Qualitative Methods	*AKLD Ch. 8-10,*
1/27	3.	Surveys	**Modal American**, *AKLD Ch. 11-12, 14-15*
2/1	4.	Secondary Data	*AKLD Ch. 5-7*
2/3	5.	Experimentation and A/B Testing	*AKLD Ch. 13*
2/8	6.	Tools of Data Analysis	
2/10	7.	Hypothesis Testing	*AKLD Ch. 17-18, CF Ch. 6*
2/15	8.	Applications of Hypothesis Testing	**The Experiment Experiment**
2/17	9.	Multiple Regression	*AKLD Ch. 19, CF Ch. 7*
2/22	10.	Marketing Mix Models	
2/22	**Assignment 1 Due**		
2/24	11.	Guest speaker: Market Research	
3/1	**Midterm Exam I** *(See footnote[1])*		

Module 2: Marketing Research

3/3	12.	Advanced Regression	*CF Ch. 9, 13*
3/8	*No Class – Optional recorded lecture (Text Analysis)*		*Happiness Calculator*
3/10	*No Class – Spring Break*		
3/15	13.	Introduction to Conjoint Analysis	
3/17	14.	Ratings-based Conjoint	
3/19	**Assignment 2 Due**		
3/22	15.	Choice-based Conjoint	*CF Ch. 13*
3/24	16.	Cluster Analysis	*AKLD Ch. 20, CF Ch. 11*
3/29	17.	Factor Analysis	*AKLD Ch. 20, CF Ch. 8*
3/31	18.	Applications: Factor and Cluster Analysis	
4/5	19.	New Product Diffusion	
4/7	**Midterm Exam II**		

Module 3: Marketing Analytics

4/12	*No Class – Break*		
4/14	20.	Customer Lifetime Value (CLV)	**Planet Money: CLV**
4/16	**Assignment 3 Due**		
4/19	21.	Digital Marketing and Attribution	
4/21	22.	Predictive Analytics and Machine Learning	
4/26	23.	Guest Lecture: Marketing Analytics	
4/28	24.	Personalization, Recommendations, and Ethics	**Rabbit Hole, Ep. 1**

<u>FINAL EXAM AND ASSIGNMENT 4 DUE BY END OF TERM (MAY 11)</u>

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[1] 3/1 is also the last day to drop a class. To help you make this decision, I will allow the exam to be taken over a 48-hour period, from 2/28 – 3/1, and your score will be available immediately after submission.