MKTG212: Data and Analysis for Marketing Decisions
MKTG-212-001: M/W 10:30 - 11:50 AM
MKTG-212-002: M/W 3:00 - 4:20 PM
MKTG-212-003: M/W 1:30 - 3:00 PM

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Office hours: TBD  Office hours:

Course Description
Data is increasingly driving marketing decisions. Firms have access to more data, and more
detailed data on their customers and the marketing environment than ever before. Such data
may include in-store and online customer transactions, product usage data, data from A/B
testing, customer surveys, and data on prices and advertising. This course is an introduction to
the fundamentals of data-driven marketing, including topics from marketing research and
analytics. Using real-world applications from various industries, the goal of the course is to
familiarize students with several types of marketing problems as well as how to leverage data
to make effective marketing decisions. The course will involve formulating critical problems,
developing relevant hypotheses, analyzing data and, most importantly, drawing inferences and
telling convincing narratives, with a goal of producing actionable results.

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 common statistical tools for answering many common 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

• **Prerequisites:** Introductory statistics (e.g. STAT101); MKTG101 highly recommended.

• **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: [https://franklin.library.upenn.edu/catalog/FRANKLIN_9977137149303681](https://franklin.library.upenn.edu/catalog/FRANKLIN_9977137149303681))
  - *Marketing Research* by Aaker, Kumar, Leone, and Day (AKLD on syllabus)  
    (On reserve at Lippincott Library.)

• **Lecture slides and recordings:** I will only post the slides after lectures. I believe in a “heads up” learning environment, which means I want you to be engaged with the lecture, not following handouts. If you missed a point in class or want to review the material, all of the lectures will be recorded and made available on Canvas.

• **Electronics policy:** No electronic devices are allowed in class. Laptops will be allowed only for in-class exercises, which will be clearly specified in advance.

• **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.

• **Grades:** Grades will always be posted to 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/videos), marked in bold on the syllabus. These are typically very short and will be posted on Canvas. Please read them before coming to class.

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

• **Questions:** All questions about the assignments should be posted on the Canvas discussion board. Please do not email the professor or TA questions about assignments. If you have a question, chances are others do, too, and we can help everyone by addressing questions online.
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, 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.

Assessment

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 (attendance)

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, take-home 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.

Exam policies:
- Because the midterms are take-home, and because only the higher of your two score counts, there will be no make-up exams or extensions, no exceptions.
• 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 the assignments.

**Group policies:**

• Groups may be up to five students. You may also work individually.

• Groups must be reported to the TA at least one week before the assignment is due. One person from your group should email the TA the full list of group members, with names as they appear on Canvas, by 11:59PM one week before the assignment is due.

• Once your group is submitted to the TA, you may not change your group for that assignment.

• There is no need to stay with the same group for all three assignments, although you may if you want to.

• **If you do not submit a group to the TA 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: you must email us your group every time.**

**Online 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.

**Course participation:**

This part of the grade will be determined primarily by simply coming to class. If you come to each class, you will get full participation points. You may miss up to three classes with no
penalty, for any reason. After that, each absence will significantly detract from your participation score, unless discussed with the professor.

Grade Cut-offs:

There is no curve. I am happy to award an A to anyone who has earned it. The tentative 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+      75.00%
C       70.00%
D       60.00%

These are the lowest possible scores to achieve each letter grade. This is the grading scheme I have used previously in this course, and will likely use again this year. A+ will be awarded at my discretion. In the past, A+ was given for achieving a high total score (>97%), together with actively attending and participating in class.
## Tentative Course Schedule

**bold** = deliverable/required; *italics* = optional  
AKLD = Aaker, Kumar, Leone, and Day textbook; CF = Chapman and Feit textbook

### Module 1: Foundations of Data and Analysis

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<tr>
<th>Date</th>
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<th>Readings</th>
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<tr>
<td>1/15</td>
<td>1. Course Introduction</td>
<td>AKLD Ch. 3-4</td>
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<td>1/20</td>
<td>No Class - MLK Day</td>
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<tr>
<td>1/22</td>
<td>2. Primary Data</td>
<td>AKLD Ch. 8-10, Modal American, AKLD Ch. 11-12, 14-15</td>
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<td>3. Surveys</td>
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<td>4. Secondary Data</td>
<td>AKLD Ch. 5-7</td>
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<td>2/3</td>
<td>5. Experimentation and A/B Testing</td>
<td>AKLD Ch. 13</td>
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<td>2/5</td>
<td>6. Tools of Data Analysis</td>
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<td>2/10</td>
<td>7. Hypothesis Testing</td>
<td>AKLD Ch. 17-18, CF Ch. 6</td>
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<td>2/12</td>
<td>8. Applications: Hypothesis Testing</td>
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<td>2/17</td>
<td>9. Regression I</td>
<td>Optimizely, AKLD Ch. 19, CF Ch. 7</td>
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<td>2/19</td>
<td>10. Regression II</td>
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<td>2/24</td>
<td>11. Midterm Exam I</td>
<td>CF Ch. 9, 13</td>
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<td>12. Advanced Regression</td>
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### Module 2: Marketing Research

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<tr>
<td>3/2</td>
<td>13. Conjoint Analysis I</td>
<td>AKLD Ch. 21, CF pp. 246-252</td>
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<td>3/4</td>
<td>14. Conjoint Analysis II</td>
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<td>3/9</td>
<td>No Class - Spring Break</td>
<td>CF Ch. 13</td>
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<tr>
<td>3/11</td>
<td>No Class - Spring Break</td>
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<td>3/16</td>
<td>15. Choice-based Conjoint</td>
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<td>3/26</td>
<td>16. Guest Lecture: Conjoint/Pricing</td>
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<td>3/23</td>
<td>17. Cluster Analysis</td>
<td>AKLD Ch. 20, CF Ch. 11</td>
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<td>3/25</td>
<td>18. Factor Analysis</td>
<td>AKLD Ch. 20, CF Ch. 8</td>
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<td>3/30</td>
<td>19. Applications: Factor and Cluster Analysis</td>
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<td>4/1</td>
<td>20. New Product Diffusion</td>
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<tr>
<td>4/6</td>
<td>21. Midterm Exam II</td>
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<td>4/8</td>
<td>22. Text Analysis</td>
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### Module 3: Marketing Analytics

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<td>24. Digital Marketing and Attribution</td>
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<td>4/22</td>
<td>26. Applications: CLV, Attribution, and ML</td>
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<td>4/27</td>
<td>27. Guest Lecture: Analytics</td>
<td>Facebook and YouTube</td>
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<td>4/29</td>
<td>28. Frontiers of ML + Course Wrap-Up</td>
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