# MKTG 352: Marketing Analytics for New Product Development
## Section: 001
### Spring 2017

| Instructor: | Dr. Gautham Vadakkepatt, Assistant Professor of Marketing |
| Office: | Enterprise Hall, Room 133 |
| Telephone: | (703) 993-1227 |
| Fax: | (703) 993-1809 |
| E-mail: | gvadakke@gmu.edu |
| Course Website: | BLACKBOARD |
| Class Time and Location: | Thursday, 4:30 p.m.-7:10 p.m., Mason Hall D005 |
| Office hours: | Any time I am not teaching (by appointment only) |

## Required Materials:

A. **Software**
   - Students are required to bring a laptop to every class
   - 1) IBM SPSS (We will use Virtual Computing Lab access to SPSS)
   - 2) Microsoft Excel with Solver add-in

## Lecture Notes and Data:

Will be posted on Blackboard

## Optional Textbooks:


B. **Course Pack**
   - [http://cb.hbsp.harvard.edu/cbmp/access/60524144](http://cb.hbsp.harvard.edu/cbmp/access/60524144)
   - In this course pack you will find supplemental reading material that will help you understand the material better.

## Credit Hours:

3 cr. hrs.
COURSE DESCRIPTION

In today’s technology enabled world, organizations collect lot of information as a part of their business operations and pool it with data acquired from outside sources. Marketing analytics is a systematic approach to harnessing this data/information to drive effective marketing decision making. We will learn to analyze historical data, market research data, and competitive information for making strategic marketing decisions.

This course will be extensively based on hands-on exercises and mini-case discussions. Students will learn how to run some basic marketing analysis techniques and interpret the results of their analysis. Other pedagogical tools that will be used are lectures, in-class discussions, readings, and team assignments.

Specifically, you will learn about: how to value customers, predict consumer choice, segment the market, position the product in customers’ minds and identify which attributes to include/exclude in a new product. Each of these decisions will be made using analytic tools that are often used by marketers in the real world. These decision analytic tools will help us generate useful insights about customer preferences, consumer behavior, and competitive market actions.

The course objectives are to:
- Help students understand the role of analytical techniques and show how they can enhance quality of marketing decision making in modern enterprises.
- Make students comfortable with using SPSS.
- Improve students’ ability to view marketing processes and relationships systematically and analytically.
- Expose students to various examples that demonstrate the value of marketing analytics in real managerial contexts.

COURSE POLICIES AND EXPECTATIONS

School of Business Standards of Behavior

The mission of the School of Business at George Mason University is to create and deliver high-quality educational programs and research. Students, faculty, staff, and alumni who participate in these educational programs contribute to the well-being of society. High-quality educational programs require an environment of trust and mutual respect, free expression and inquiry, and a commitment to truth, excellence, and lifelong learning. Students, program participants, faculty, staff, and alumni accept these principles when they join the School of Business community. In doing so, they agree to abide by the following standards of behavior:
- Respect for the rights, differences, and dignity of others
- Honesty and integrity in dealing with all members of the community
- Accountability for personal behavior

Integrity is an essential ingredient of a successful learning community. Ethical standards of behavior help promote a safe and productive community environment, and ensure every member the opportunity to pursue excellence. School of Business can and should be a living model of these behavioral standards. To this end, community members have a personal responsibility to integrate these standards into every aspect of their experience at...
the School of Business. Through our personal commitment to these Community Standards of Behavior, we can create an environment in which all can achieve their full potential.

**In-Class Behavior**

Most of you will be graduating soon and taking a job in a corporate setting. It may be helpful in preparing you for that experience to think of class as a business meeting.

- You would avoid whispering and laughing with the person sitting next to you. You would listen attentively, probably take notes, and manage your face and posture to convey interest and competence.
- You would turn off your cell phone, beeper or pager to avoid disturbing the meeting.
- You would not read a newspaper or work on tasks unrelated to the meeting.
- You would avoid interrupting people or being rude in any way.
- You would wait until after the meeting to discuss special accommodations for your personal situation. Why? Because doing any of these things reflects badly on you.

As a member of this class, you are invited to think, question, disagree, and offer alternatives. However, my expectation is that you will behave professionally.

**Honor Code Statement**

The Honor System and Code adopted by George Mason University will be enforced for this class:


In your work on all written assignments, keep in mind that you may not present as your own the words, the work, or the opinions of someone else without proper acknowledgement. You also may not borrow the sequence of ideas, the arrangement of material, or the pattern of thought of someone else without proper acknowledgement. Faculty are obligated to submit any Honor Code violations or suspected violations to the Honor Committee without exception.

*The School of Business “Recommendations for Honor Code Violations” is posted on the course website.*

Assignments and exams that are determined to be in violation of the University Honor Code will result in a grade of zero. Infractions or appeals may be referred to the Honor Council for resolution.

**Announcements and Updates**

It is your responsibility to check Blackboard regularly for the addition of any supplemental course material. Email announcements between class meetings may be sent. Any email from me will be sent to your GMU email account.
E-Mail Correspondence

You must use your “GMUID@gmu.edu” e-mail address for all communication with me via email. I will not respond to emails from any other address. This policy will be strictly enforced due to federal privacy laws which state that I am not allowed to provide confidential information to any non-GMU e-mail address. When sending emails, please put “MKT 491” in the subject line of your email.

Attendance

Attendance is expected. You will miss significant portions of the material; miss information critical for performing well in this course; as well as forfeit participation points if you are not present in class. You are responsible for all material covered in class. If you are absent from class, it is your responsibility to follow-up with your classmates about what you missed in class. It is extremely crucial that you attend the lab sessions as students will be taught how to use software for specific data analysis techniques.

Religious Holidays, Sports, and School-Related Activities

If you expect to be absent from class during the semester for any of the above reasons, please contact me within the first two weeks to make appropriate arrangements with regards to graded components of the course.

Students with Disabilities

George Mason University is committed to providing reasonable accommodations for students with disabilities in order to allow for equal learning opportunities. If you need such accommodations, please contact the Office of Disability Services at (703) 993-2474.

Inclement Weather Policy:

We will operate in accordance with official university decisions about inclement-weather cancellations. Please check GMU website or the information line 703-993-1000. If class is cancelled then the schedule of subjects and assignments may need to be changed.
COURSE GRADING

You may earn up to 1000 points during the length of this class. The grading breakdown is given below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Deliverable</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>1. Mid-term exam</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>2. Home-work assignments (best 4 of 6)</td>
<td>200 (4*50)</td>
</tr>
<tr>
<td></td>
<td>3. Take-home final exam</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>4. Class participation</td>
<td>50</td>
</tr>
<tr>
<td>Team</td>
<td>Data analysis project</td>
<td>250</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1000</td>
</tr>
</tbody>
</table>

***** All grades (Assignments and Exams) are final within two weeks of them being posted. There will be no adjusting of any grades two weeks after the grade is posted.******

Final grades will be assigned strictly based on the following scale:

- >=930: A 900-929: A-
- 870-899: B+ 830-869: B 800-829: B-
- 770-799: C+ 730-769: C 700-729: C-
- < 700: F

NOTE ABOUT GRADES

- Grades will be accessible by Blackboard only.
- For your security, grades will not be provided by phone or email.
- Grades are **not negotiable**. Students with extenuating circumstances which require them to receive a certain grade or maintain a particular GPA (e.g., graduation, loss of a scholarship, University probation or suspension, loss of a job offer, revocation of student Visa, etc.) need to realize that they are responsible for working hard to achieve the needed class grade. Exceptions will not be made for individual students.
- Grades can be changed **only** if I have made an input or calculation error. It is important that you check your class grades and immediately notify me of any discrepancies.

GRADING COMPONENTS

**Individual Component**

*Midterm Exam*

The mid-term exam will be an in-class exam. The exam will comprise of a few short answer essay questions based on lectures, class discussions, assigned readings, data analyses, and any other material used in the course. This in-class exam will not require any software, but will need you to use a calculator and interpret tables/results.
Homework Data Assignments

The best way to learn data analysis is by actually doing it. While the instructor will go over the various types of analysis in class with a sample dataset, students will be required to complete homework assignments on a different dataset using the same techniques. These assignments are individual assignments and the best four of the six data assignments will be used to evaluating the final grade. Lab sessions will be used to provide student teams assistance in solving these problems.

Final Take-home Exam

The final exam will be a take-home exam. The exam will require students to analyze datasets to come up with conclusions as well as answer a few short answer essay questions based on lectures, class discussions, assigned readings, data analyses, and any other material used in the course. You will have one week to turn in the final exam.

Team Final Project

The final team project will involve design of short market research study, data collection, data analysis, and short report. The project can address one of five major topics: regression model applications, customer choice, market segmentation, product positioning, or ideal design of a new product concept. Please see detailed project outline at the end of the syllabus (PG. 9). Students are encouraged to meet with the instructor at various stages of the project to ensure that they are on track.

A Note about Emergencies and Exam/Quiz Dates:

Make-up exams/quizzes will only be given in case of an emergency or official university travel. I will require written proof to allow for make-up exams/quizzes. If you happen to miss an exam/quiz without an excused absence, you will be assigned zero points. If you know that you will miss an exam, it is your responsibility to inform me via email or voice mail BEFORE the exam. I reserve the right to determine the nature and date of the make-up exam.

Team Component

Each team should ideally consist of 3 or 4 students. Each team should provide me with the name of its members no later than Feb 9th, 2017. Individuals who fail to form a team by the designated date will be either grouped together or assigned to other teams. At the end of the semester each team member will get an opportunity to evaluate other members of the team. This peer evaluation will be used to identify contribution of each team member as perceived by other member of the team. If a team member is consistently rated poorly for inadequate contribution by other members, points will be deducted from his/her team assignment score. Final group assignment grades will be individually adjusted using the following system:

- Each student will be required to turn in an evaluation form at the end of the semester class presentation (will be made available on the course website).
- The evaluation form consists of five 5-point rating scale questions, with ratings that range from 5 for “Strongly Agree” to 1 for “Strongly Disagree”. For each group member you rate, the scores for each question will be added and a total score
computed. The minimum score is obviously 5 with a maximum score of 25. Remember that you have to evaluate your own effort to the group project also.

- All evaluation scores for each student will be averaged. For example, in a four member group, each student will get four total evaluation scores. These four total evaluation scores will be averaged to arrive at an “Average Evaluation Score” that ranges from 5.0 to 25.0.
- If no peer evaluation is turned in by an individual, then I will assume that according to that individual all team members have performed equally.
- If you are rating someone poorly, you will have to provide a detailed explanation of why the individual received a poor grade on specific evaluation criteria.
- The final group assignment grade each student will receive is based on the total group grade (0 to 100 points) multiplied by a “Group Assignment Adjustment Multiplier” based on the following conversion table.

<table>
<thead>
<tr>
<th>Average Evaluation Score</th>
<th>Group Assignment Adjustment Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.5 or higher</td>
<td>1.00</td>
</tr>
<tr>
<td>20.5 to 22.4</td>
<td>0.90</td>
</tr>
<tr>
<td>17.5 to 20.4</td>
<td>0.80</td>
</tr>
<tr>
<td>15.5 to 17.4</td>
<td>0.75</td>
</tr>
<tr>
<td>13.5 to 15.4</td>
<td>0.70</td>
</tr>
<tr>
<td>11.5 to 13.4</td>
<td>0.65</td>
</tr>
<tr>
<td>9.00 to 11.4</td>
<td>0.60</td>
</tr>
<tr>
<td>8.9 or lower</td>
<td>0.50</td>
</tr>
</tbody>
</table>

**Note on peer evaluations:** Poor peer evaluations can result in poor grades. As such, every team member should contribute equally and effectively to the team. It is your responsibility to ensure that the quality and quantity of your work is up to the expectations of your team members. To achieve this, it would be a good idea to solicit voluntary feedback from your team member’s mid-way through the project so that you can take any remedial action necessary. Teams that have problematic team members should inform me at the earliest so that corrective action can be taken.

**STATUTE OF LIMITATIONS**

- Exam grades, project grades, and final grades are non-negotiable and final. Grades will only be changed if the grade results from a mathematical or record-keeping error. It is important that each student frequently checks their class grades and immediately notifies the instructor of any discrepancies that have been discovered. After the posting of grades, you will have **ONE WEEK** to notify the instructor about any grading issues or errors. After this time period, no corrections or recalculations will be made.

**FINAL NOTE:**
Changes to the syllabus may be made to reflect the needs of the class. Any changes will be announced in class and/or via Blackboard. It is the students’ responsibility to stay aware of any changes made.
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Content</th>
<th>Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 26</td>
<td>Thur</td>
<td>Course Overview</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Introduction to Marketing Analytics</td>
<td></td>
</tr>
<tr>
<td>Feb 2</td>
<td>Thur</td>
<td>Introduction to SPSS and Descriptive Analysis</td>
<td></td>
</tr>
<tr>
<td>Feb 9</td>
<td>Thur</td>
<td>Regression Models and Lab</td>
<td>Final Project: Team List Due</td>
</tr>
<tr>
<td>Feb 16</td>
<td>Thur</td>
<td>Regression Models and Lab</td>
<td>Final Project: Research Question Due</td>
</tr>
<tr>
<td>Feb 23</td>
<td>Thur</td>
<td>Choice Models and Lab</td>
<td>Assignment 1</td>
</tr>
<tr>
<td>Mar 2</td>
<td>Thur</td>
<td>Choice Models and Lab</td>
<td></td>
</tr>
<tr>
<td>Mar 9</td>
<td>Thur</td>
<td>Customer Lifetime Value</td>
<td>Assignment 2</td>
</tr>
<tr>
<td>Mar 16</td>
<td>Thur</td>
<td><em>Spring Break</em></td>
<td></td>
</tr>
<tr>
<td>Mar 23</td>
<td>Thur</td>
<td>Lab and Exam Review</td>
<td></td>
</tr>
<tr>
<td><strong>Mar 30</strong></td>
<td>Thur</td>
<td><strong>Mid-term Exam</strong></td>
<td>Assignment 3</td>
</tr>
<tr>
<td>Apr 6</td>
<td>Thur</td>
<td>Market Segmentation and Lab</td>
<td>Final Project: Questionnaire Due</td>
</tr>
<tr>
<td>Apr 13</td>
<td>Thur</td>
<td>Positioning and Lab</td>
<td>Assignment 4</td>
</tr>
<tr>
<td>Apr 20</td>
<td>Thur</td>
<td>Conjoint Analysis and Lab</td>
<td>Assignment 5-6</td>
</tr>
<tr>
<td>Apr 27</td>
<td>Thur</td>
<td>Conjoint Analysis and Lab</td>
<td></td>
</tr>
<tr>
<td>May 4</td>
<td>Thur</td>
<td>Project Work Day</td>
<td></td>
</tr>
<tr>
<td><strong>May 11</strong></td>
<td>Thur</td>
<td><strong>Final Exam Due</strong></td>
<td>11:59 p.m.</td>
</tr>
</tbody>
</table>
Final Project Outline

Step 1: Decide product or service category which you want to analyze?

Step 2: Become brand manager of a brand (hypothetical or real).
Assume position of a brand manager of a brand either currently being offered in the product category or that of a hypothetical brand that you wish to launch in this market. Be very specific about the brand and its characteristics. For example I am assuming the position of a brand manager for Budweiser American Ale for the ‘Beer Data Survey’ and the characteristics of the brand are well specified (dark colored, full bodied, local origin, specialty market etc).

Step 3: Decide the type of analysis you want to perform?
You can choose one from the following analysis
1. Segmentation and Targeting analysis (Cluster analysis, Discriminant analysis)
2. Positioning analysis (Perceptual Maps)
3. New product analysis (Conjoint analysis)
4. Customer choice and customer value (Logistic regression, CLV)
5. Regression models (sales forecasting, advertising ROI, etc)

Step 4: Decide on data requirements for analysis.
Use the following table to get an idea of type of information needed (this table is valid only for segmentation, targeting, positioning and conjoint analysis). Please note that for other research questions you can collect data from social media sites etc.

<table>
<thead>
<tr>
<th>Data On</th>
<th>Segmentation and Targeting</th>
<th>Positioning</th>
<th>New Product Design (Conjoint)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of Attributes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Needs)</td>
<td>Descriptors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Demographics/Lifestyles)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of Brands on Attributes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Preferences of Brands</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Preferences for Attribute Bundles</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

Step 5: Design survey for data collection.
The good old paper based survey is always an option. You can also use any web-based survey option (e.g., SurveyMonkey)

Step 6: Sample size and data collection process.
Required Sample Size: 50 completed usable responses. You can collect data from anybody except your pets. The idea is not the representativeness of the sample but understanding of the data collection process. It is expected that a good faith attempt will be conducted to capture the data from the target market that actually will use the product.
Step 7: Data coding and cleaning.  
If using the above web based software make sure how your data is coded. If the coding is not appropriate recode the data.

Step 8: Create relevant data analysis template for selected analysis.

Step 9: Analyze the data using relevant data analysis steps showed in class.

Step 10: Write a short report (4-5 pages) on the study.
General issues that you will address are as follows.
1. What was the decision problem?
2. Which type of data was collected?
3. How the data was collected?
4. Which specific analyses were performed?
5. Insights generated on the basis of analyses.
6. What decisions are being recommended?

Topic specific issues that you will address are as follows.
1. Segmentation and Targeting Study
   a. Number of different segments in the market and description of each segment
   b. Profile of each segment in the market
2. Positioning Study
   a. What are the underlying dimensions and their relative importance
   b. Relative importance of different attributes
   c. Relative performance of each brand on different attributes
   d. Position that you will select for your brand on the map and why?
3. New Product Study (Conjoint)
   a. How and why different bundles were created?
   b. What were the competing offerings?
   c. Which new bundle you decide to offer in the market?
   d. How will this bundle compete relative to the existing offerings?
4. Customer choice and customer value
   a. Accuracy of prediction models
   b. Identification of all the relevant predictors
   c. What is the value of each customer segment
5. Regression Models
   a. Predict new product sales or existing product sales using right variables
   b. Develop a best fit model

Report Format
1. 4-5 pages, 1.5 spaced, 12 font size, single space (not including appendices)
2. Summary of decision problem and recommendation on first page.
3. Email me the data file used for analyses.
4. Include Questionnaire as an appendix.
Sample Research Questions:

1) Predict sales for a new app
2) Predict probability that someone is going to go to a Capitals home-game
3) Segment the market of craft beer drinkers
4) Develop a perceptual map of how consumers view Coca-Cola in comparison to other carbonated drinks on the following dimensions
5) Develop a new running shoe for Nike based on consumer preferences with regards to new product attributes.
6) What is the ROI of advertising for public firms
7) What type of advertising on social media is most effective in generating consumer interest