

MGT/P/B 443(V): Customer Analytics

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Student Hours: I welcome you to contact me or the TA outside of class to schedule a time to solve any questions you might have.

Course Description

Customer Relationship Management (CRM) is a management approach that recognizes the individual customer as the core of a business. Companies strive to use effective CRM to optimize the identification, acquisition, growth and retention of desired customers. However, as a marketer today, you have access to more customer data than ever; from email actions and demographics to social engagement and loyalty program activity, and it's often hard to know what to do with all this information. This course will teach you how to use customer analytics to learn about and market to individual customers. We will examine the different types of data analytics and how they fit into the CRM world. From understanding the historical patterns of your customers and predicting which of them are coming back, to designing marketing campaigns to alter their predicted behavior. Lastly, we will learn how CRM links Marketing with Finance and Accounting. Taking the customer as our main unit of analysis for the firm, we will compute her Customer Lifetime Value (CLV). This "bottoms-up" approach will in turn allow us to compute the company's customer based corporate valuation (CBCV), which complements the traditional finance valuation tools.

Course Goals and Learning Objectives

Some of the specific skills I hope you will obtain by the end of the course are listed below:

1. Acquire a conceptual understanding of the customer analytics processes, and design an analytics plan, in order to evaluate CRM questions such as:
 - Did a marketing promotion for an e-commerce retailer succeed?
 - Which acquisition channel is more effective for my business?
 - Which of my customers will churn in the future?
2. Develop a general framework for taking charge in new situations, as well as a personal philosophy and style of CRM management when collaborating and communicating with the data-analytic teams of your company.
3. Acquire a solid knowledge on CRM topics, such as Customer Equity and Customer Lifetime Value, Customer Mix, Social CRM, and Customer Based Corporate Valuations.

Evaluation of Work	Weight
1. Class Participation	10%
2. Case Preparation	10%
3. Case Discussion	10%
4. Homework Assignments	30%
5. Final Group Project	40%

Each of these is discussed below:

1. Class Participation

- I hope you actively participate in this course. I find class participation to be the most effective way in learning the material and it makes lectures more fun. Positive contributions that deepen our collective understanding of a topic and build class discussion increase your score. I am particularly sensitive to comments that demonstrate that you have been carefully listening to the previous speaker. You can also “earn” contribution points by sending me “interesting” articles that are relevant to our class topics and discussions. Please write me a short paragraph why you found the article interesting and how it connects to our class topics. A third way to enhance your participation score and for me to get to know you better is to sign-up for an office/zoom visit with me about your career plans.

2. Case Preparation

- Each group will have to prepare and present a case.

3. Case Discussion

- Another group will be responsible to prepare a set of good questions that will push the presenters to their limits (in a good way!) and build a creative case discussion.

4. Homework

- There will be weekly or biweekly homework assignments. Instructions for these assignments will be posted on Canvas. All assignments must be submitted electronically through Canvas by the due date. In fairness to everyone in the class, **no e-mail submissions and/or late homework assignments will be accepted.** We will discuss homework assignments in-

class the day that they are submitted -- **no homework solutions will be distributed.**

5. Final Group Project

- For the final project, you will have to work in groups with my MSBA students. More specific, each of your groups will have to “hire” your data scientists from my MSBA students. The final project requires you to apply the course concepts to a current business or social good problem that you face or find interesting and can be solved through data analytics. In other words, you have to create a data analytics start-up. **As a team, you must develop both a Business Plan and an Analytics Plan. You will be responsible for developing the business plan and coordinate with the MSBA students to develop the analytics plan. The MSBA students will be responsible for executing the analytics plan, but you have to lead them.** The analytics plan will articulate how you will use data analytics methods to assess your business initiative. Detailed instructions will be provided in class. You are expected to submit a project proposal by class 5. I will invite student groups to set up a meeting with me at the mid of our quarter and discuss potential final projects and methods. **Disclaimer: You should plan to start working on the final project from week 3. This is not a project that you can leave for the last 2 weeks of class.**

Grading and “Rules of the Game”

Grading

Your course grade is a weighted average of class participation, case preparation and discussion, homework assignments, and the final project. **You must submit any re-grading requests via email within 10 days from when the assignment is returned.** In your email, you should clearly explain why you are requesting a re-grade. While I will consider the specific concerns cited in your email, I will hold the right to re-grade the entire assignment. Please remember that small changes in your grade on a single assignment typically do not affect your overall course grade.

Free-riding Policy: I am very sensitive to free riding phenomena in group assignments. To this end, you will have to submit in Canvas **your peer evaluations** at the end of the quarter. If I determine that a student has been free-riding, I will assign a 0 to the assignments they have free-ridden.

Grading Scale: Your final letter grade will be assigned based on the following scale:

A+	You have to be exceptional	B-	80% to 82.4%
A	95% or above	C+	75% to 79.9%
A-	90% to 94.9%	C	72.5% to 74.9%
B+	85% to 89.9%	C-	70% to 72.4%
B	82.5% to 84.9%	F	Below 70%

Honor Code and Classroom Etiquette

When you are in class, these are my important etiquette aspects:

1. **Statement on Accommodation:** UC Davis is committed to educational equity in the academic setting, and in serving a diverse student body. All students who are interested in learning about how disabilities are accommodated can visit the [Student Disability Center](#) (SDC). If you are a student who requires academic accommodations, please contact the SDC directly at sdc@ucdavis.edu or 530-752-3184. If you receive an SDC Letter of Accommodation, submit it to me as soon as possible, at least within the first two weeks of the course.
2. **Rights and Responsibilities:** All participants in the course, instructor and students, are expected to follow the UC Davis [Principles of Community](#), which includes affirmation of the right of [freedom of expression](#), and rejection of discrimination. The right to express points-of-view without fear of retaliation or censorship is a cornerstone of academic freedom. A diversity of opinions with respectful disagreement and informed debate enriches learning. However, in this course, any expression or disagreement should adhere to the obligations we have toward each other to build and maintain a climate of mutual respect and caring. You are expected to take UC Davis's [Code of Academic Conduct](#) as seriously as we do. You were given this code of conduct with explicit explanations of violations (e.g. plagiarism, cheating, unauthorized collaboration,

etc.) and your responsibilities in regard to them during orientation, and you signed a statement affirming that you understand it. Academic conduct violations will not be tolerated, and your instructor will not hesitate to turn violators over to Student Judicial Affairs. If you are uncertain about what constitutes an academic conduct violation, please refer to the code linked above, contact your instructor, or refer to the [Office of Student Judicial Affairs](#). All material in the course that is not otherwise subject to copyright is the copyright of the course instructor and should be considered the instructor's intellectual property.

3. **Safety and Emergency Preparedness:** UC Davis has many resources to help in case of emergency or crisis. While reviewing campus [Emergency Information](#), you may want to register for UC Davis Warn Me and Aggie Alert, which will give you timely information and instructions about emergencies and situations on campus that affect your safety. If there is an emergency in the classroom or in non-Davis locations, follow the instructions of your instructor.
4. **Electronics:** All cell phones must be muted before the start of class. The computer should only be used to take class notes or run our in-class exercises. All other programs should be shut down before the start of class. Any IG/FB chatting, web surfing, e-mail etc. disturbs the class and is a breach of classroom etiquette. **If that comes to my attention, you will immediately be asked to leave the classroom.**
5. **Attendance and Punctuality:** Class will begin on time. You should attend every class but extenuating circumstances arise that can make this difficult. If you are not able to attend a class, please let me know by email. If you miss one session, this will not affect your course grade. Each additional absence will decrease your participation grade by 5%, i.e., a second absence will reduce your participation grade from 15% to 10%, a third absence to 5%, and a fourth absence to 0%. **If you miss five or more classes, you will fail the course.** I realize that students face many issues during the quarter that impact class attendance. I will handle requests for excused absences and exceptions to the attendance policy on a case-by-case basis. **Explanations must be provided to me via email no less than 24 hours prior to the start of the class. Late explanations will not be considered.** When a guest speaker is scheduled for class, late arrivals and/or early exits are strictly prohibited regardless of the explanation. There are

exceptions in accordance with UC Davis policy for religious holidays, funerals, and student/dependent hospitalizations. If a student has a medical condition that may occasionally necessitate their leaving class mid-class, this should be disclosed to me via email during Week 1 of the course.

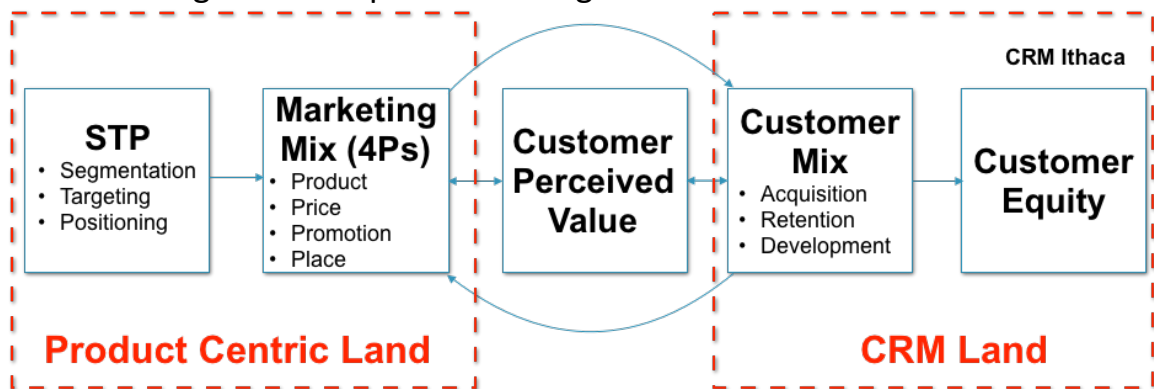
6. **Email Correspondence:** In fairness to everyone, you must post any questions you might have related to the class on Canvas Discussion Forum. **You should only email me for the aforementioned medical/absence reasons and/or for any other personal reason unrelated to class.** Failure to do so will reduce your participation score.
7. **Disclaimer:** Unexpected events might require elements of this syllabus to change. I will keep you informed of any changes.

Feedback

Feedback about your course experience is extremely valuable to me. If at any point during the quarter you would like to tell me something anonymously, please communicate your feedback at our class liaison.

Class Roadmap

Below is a high-level map of Marketing.



The first two places, namely STP and Marketing Mix constitute the classical landmarks of product centric marketing. In this class, we will focus on the last two places. Some instructions about our journey:

1. Customer Equity will be our Ithaca.
2. To get there, we will go through the land of Customer Mix (Acquisition, Retention, and Development).
3. Hopefully, you will realize that this is a never-ending journey. Once you arrive at Ithaca, you will have to go back to Customer Mix and improve.
4. To master this journey, you will also need to realize that the CRM land is an interconnected system with the product centric land through the customer perceived value land.
5. Emphasis will be put on how data analytics has changed the traditional CRM methods and the CRM landscape.

Detailed Class Description and Readings

Please note that I will provide most of the readings in electronic format (try to save some trees by not printing everything). You will only need to get the course packet with the case studies. Items in the course packet will be noted by **[HBS]** at the end of the reading. Although we do not have a required book for this class, below is a list of recommended books for those who want to delve deeper into CRM:

1. V. Kumar and Werner Reinartz (2018), Customer Relationship Management: Concept, Strategy, and Tools (Springer Texts in Business and Economics). **This is a comprehensive book that includes the state-of-the-art CRM concepts and tools. I highly recommend you to get it; it will help you review most of the concepts taught in this class.**
2. Peter Fader (2012), Customer Centricity: Focus on the Right Customers for Strategic Advantage (Wharton Executive Essentials). **This is a very short and enjoyable read.**
3. E. Ofek, E. Muller, and B. Libai (2016), Innovation Equity: Assessing and Managing the Monetary Value of New Products and Services. **If you want to delve deeper into the adoption processes of innovation, or if you are interested in start-ups, this is a great read!**

Class 1: Product vs Customer Centric Marketing

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Objectives:

1. Get to know each other!
2. Learn about Product Centric Marketing
3. Learn about Customer Centric Marketing

Readings:

1. Michael Haenlein (2017), How to date your clients in the 21st century: Challenges in managing customer relationships in today's world.
2. Elie Ofek (2014), Customer Lifetime Value (CLV) vs. Customer Lifetime Return on Investment (CLROI). [HBS]
3. Deshpandé Rohit, Customer Centricity. [HBS]

Class 2: Customer Lifetime Value -- Our key CRM metric

Objectives:

1. Learn about diffusion of innovations.
2. Learn and apply lifetime value calculations.
3. Learn about Customer Equity and Innovation Equity.

Readings:

1. Chapter 1 and 2 from "Innovation Equity: Assessing and Managing the Monetary Value of New Products and Services."
2. Pantelis Loupos, Would you invest in dating? [Read the case found in your homework folder](#)

In-class Cases/Exercises:

- **Homework 1 (Group):** Would you invest in dating? -- [Due at the beginning of Class 3.](#)

Class 3: Data Analytics Framework -- Our tools for the road

1. Understand the three pillars of analytics – descriptive, predictive and prescriptive.
2. Recap of Prescriptive Analytics Methods:

- a. A/B Experiments
 - b. Natural Experiments
 - c. Quasi Experiments
 - i. Matching
 - ii. Diff n Diff
 - iii. Phased Roll Outs
3. Recap of Predictive Analytics Methods

Readings:

1. Eric T. Anderson and Duncan Simester (2011), A Step by Step Guide to Smart Business Experiments.
2. Florian Zettelmeyer and Matthias Bolling, Big Data Doesn't Make Decisions, Leaders Do.
3. Foster Provost and Tom Fawcett (2013), Data Science and its Relationship to Big Data and Data-driven Decision Making.

In-class Cases/Exercises:

1. Florian Zettelmeyer, HPE Partner Marketing **(in-class exercise)**

Plan ahead:

- **Homework 2 (Individual):** Data Analytics Recap -- Due at the beginning of Class 5.

Class 4: Customer Mix Pillar 1 -- Acquisition

Objectives:

1. Understand Cost of Acquisition vs CLV.
2. Learn about acquisition funnel and Conversion Rate.
3. Learn about Digital Marketing and Attribution Theory

In-class Cases/Exercises:

1. Thales Teixeira and Elizabeth Watkins, Building an e-Commerce Brand at Wayfair. **(in-class case)** [HBS]

Readings:

1. How P&G Cut Digital Marketing and Grew Sales [Marc Pritchard Seminal Talk](#)

2. **Advanced (not required to read): ROI Inflation of 300 percent:** Lewis, R. A., & Reiley, D. H. (2014). Online ads and offline sales: measuring the effect of retail advertising via a controlled experiment on Yahoo!. *Quantitative Marketing and Economics*, 12(3), 235-266.
3. **Advanced (not required to read): Ghost Ads; overestimates up to 1,600 percent:** Johnson, G. A., Lewis, R. A., & Nubbemeyer, E. I. (2017). Ghost ads: Improving the economics of measuring online ad effectiveness. *Journal of Marketing Research*, 54(6), 867-884.
4. **Advanced (not required to read): FB Ads; overestimates up to 4,000 percent:** Gordon, B. R., Zettelmeyer, F., Bhargava, N., & Chapsky, D. (2019). A comparison of approaches to advertising measurement: Evidence from big field experiments at Facebook. *Marketing Science*, 38(2), 193-225.
5. **Advanced (not required to read): Paid Search Effectiveness on eBay:** Blake, T., Nosko, C., & Tadelis, S. (2015). Consumer heterogeneity and paid search effectiveness: A large-scale field experiment. *Econometrica*, 83(1), 155-174.

Plan ahead:

- **For class 5, you will need to submit your project proposal.**

Class 5: Customer Mix Pillar 2 -- Retention

Objectives:

1. Learn the classic RFM framework.
2. Learn how to model and predict churn.
3. Learn about Mobile Gaming CRM and Big Data Analytics

Readings:

1. Charles Duhigg, How companies learn your secrets. ([link](#))
2. Arthur Middleton Hughes, Quick Profits with RFM Analysis. ([link](#))

In-class Cases/Exercises:

1. Eva Ascarza, Tomomichi Amano and Sunil Gupta, Othellonia: Growing a Mobile Game. **(in-class case) [HBS]**

Plan ahead:

- **Homework 3 (Group): CLV -- Due at the beginning of Class 7.**

Class 6: Customer Mix Pillar 3 -- Development

Objectives:

1. Managing Unprofitable Customers.
2. Learn about cross-selling and up-selling.
3. Learn about recommendation engines.
4. Learn about revenue models and pricing concepts (If time permits and there is interest).

Readings:

1. A.G. Lafley and Roger Martin, Customer Loyalty is Overrated.
2. Clayton Christensen and Mark Johnson (2016), What Are Business Models, and How Are They Built?
3. Sequoia Capital, R.I.P. Good Times
4. Wagner Kamakura, Cross-Selling: Offering the Right Product to the Right Customer at the Right Time.

In-class Cases/Exercises:

1. Shih and Tecco, Pandora Radio: Firing Unprofitable Customers. **(in-class case)** [HBS]

Class 7: Customer Based Corporate Valuation (CBCV)**Objectives:**

1. Understand the limitations of using Customer Equity in valuing companies.
2. Learn how to use CBCV to value companies.

Readings:

6. [CBCV Online Tutorial](#)
7. Daniel McCarthy and Peter Fader (2020), How to Value a Company by Analyzing its Customers.
8. Daniel McCarthy and Peter Fader (2017), Subscription Businesses Are Booming. Here's How to Value Them.
9. A summary of 3) can be found here: <https://www.linkedin.com/pulse/marketing-get-seat-corporate-valuation-table-we-need-move-mccarthy/>
10. **Advanced (not required to read):** McCarthy, Daniel and Pereda, Fernando,

Assessing the Role of Customer Equity in Corporate Valuation: A Review and a Path Forward (January 14, 2020).

In-class Cases/Exercises:

1. Daniel McCarthy and Eric Schwartz, Blue Apron: Turning Around the Struggling Meal Kit Market Leader. **(in-class case) [HBS]**

Plan ahead:

- **Homework 4 (Group):** CBCV -- Due at the beginning of Class 9.

Class 8: Social CRM and Data Privacy/Policy

Objectives:

1. Advanced Topics
 - a. Learn about social CRM.
 - b. Learn about Data Policy

Readings:

1. **(A very inspiring read!)** RadicalxChange Foundation Ltd, The Data Freedom Act.
2. **Advanced (not required to read):** Pantelis Loupos, Alexandros Nathan, and Moran Cerf (2019), Starting Cold: The Power of Social Networks in Predicting Non-Contractual Customer Behavior.

In-class Cases/Exercises:

1. Elie Ofek, Barak Libai, and Eitan Muller (2018), Customer Lifetime Social Value (CLSV). **(in-class case) [HBS]**
2. Pantelis Loupos, Would you invest in dating revisited? **(in-class exercise)**
3. Pantelis Loupos, "Let's spy on your classmate" **(in-class exercise)**

Class 9: CRM Strategy and Omnichannel CRM

Objectives:

1. Develop and apply a CRM strategy.
2. Advanced Topics:
 - a. Omnichannel CRM

- b. Mobility Analytics
- c. Metaverse Analytics

Readings:

- 1. You made it so far, so relax for this week!

In-class Cases/Exercises:

- 1. Eric Anderson, S-mobile Case **(in-class exercise)**
- 2. Let me be your data scientist! **(in-class exercise)**

Class 10: Projects Presentation - Your time to shine!

Guidelines:

- 2. You will present your project. Prepare for a 15' presentation.
- 3. You have to submit in Canvas: **1) Your business plan, 2) Your analytics plan** and
3) your Spark/TensorFlow code (either your colab weblink or your ipynb file).
 - a. **You will be responsible for item 1.**
 - b. **You need to collaborate with MSBA students for item 2.**
 - c. **MSBA students will be responsible for item 3.**