

Syllabus

UCSD MGT 100: Customer Analytics

Spring 2023

Instructors

Professor: Kenneth C. Wilbur [Bio CV](#)

- office hours: Friday, 10-11 AM, in Rady 3W117 and on Zoom

Teaching Assistants: Prachi Bhalerao, Seung Hyun Kim, Sahil Mehra

- office hours: WEEKDAY, TIMES in LOCATION and on FILLINZOOM

Welcome

We want to welcome EVERYONE to this course. It is important to us that all students feel valued and safe in this environment.

We want you to succeed and we work hard to help make that happen. We hope you will meet us half-way by participating actively, knowing that we have good intentions toward you, and investing the time and effort needed to learn this valuable class material.

We know that we cover challenging material, quickly. This is not an easy class for most people. Yet please rest assured that nearly all past students completed the course with a passing grade. We have received almost uniformly positive comments about the value of the course, the style in which we taught it, and the skills students gained as a result of studying this material.

With all those things said, we understand that student learning styles differ and no single approach is optimal for everyone. Please do not hesitate to inform us if you experience any challenges learning in this environment. We may be able to help by helping to connect you with resources, or making suggestions or appropriate accommodations. We will work with you to the best of our ability.

Navigation

The course outline and all course materials will be available at https://kennethcwilbur.github.io/website/ucsd_mgt100_Customer_Analytics.html. Materials include slides, R scripts, readings and class recordings. Please bookmark that page.

We rely solely on freely-available books and articles, including *R for Data Science* by Wickham, Çetinkaya-Rundel and Grolemund and *Discrete Choice Methods with Simulation* by Train.

All student deliverables will be posted on the Canvas page, and all discussions will be on the Piazza page linked from Canvas.

Communication Policy:

- All student questions and comments should be posted on Piazza to ensure that all students can receive all shareable information. We answer questions on Piazza faster than we answer questions on email. If you email us, we will kindly ask you to post your question on Piazza before we answer it.
- You can post a private message on Piazza if you need to notify us about a personal issue, such as a family emergency or serious illness.
- Office hours are for open-ended conversations that would be inefficient on Piazza. They occur simultaneously in-person and on zoom, on a drop-in basis, meaning that we meet students in the order they arrive. We prefer to meet in person but Zoom is OK too and is treated equivalently.

Course Introduction

Customer Analytics is the use of customer data to improve business decision-making. Customer data are combined with economic theory, statistics and econometric modeling to improve managerial policies.

MGT 100 was designed from scratch by UCSD faculty for quantitative UCSD students. It serves as a core course in the Business Economics major and an alternate core course in the Business and Marketing minors.

Our primary goal is to develop student understanding of data-driven business decision-making. Our secondary goal is to enable students to perform and interpret analytic techniques using code.

Our course design principles are experiential learning and assessment of applications. We believe that “you don’t understand it until you code it.” You will see that is true.

We will code in R. R is free and originally designed for data analysis, data visualization, modeling and estimation. We will use base R and a set of R packages that are collectively known as the “Tidyverse.” The Tidyverse suite is effective, popular, good for collaboration, well-maintained and easier to adopt than many alternatives.

Each class meeting will have the same format. First, we will discuss key concepts, and then we will step through an R script to implement selected techniques using data. Each week’s

assignment will require you to revise the class script to accomplish a related series of tasks. Students will complete online quizzes each week, including turning in their scripts. We will conclude with a final exam to assess understanding and ability to apply major concepts.

We seek to simulate a professional experience within the classroom. We therefore expect consistent attendance, participation and collaboration. We will ensure sufficient time and resources to complete all deliverables. We require no memorization.

We offer the option to decline class attendance. If you opt out, you can consume the class recordings asynchronously and submit the deliverables on the Canvas page. We will exclude you from the seating chart and exclude the attendance & participation section of your grade. The deadline to opt out of class attendance is prior to the second class meeting. We will produce a seating chart and require consistent seating among those who do not opt out of attending class.

Most students will need to commit approximately 5–10 hours per week outside of class to have a successful experience. We may need to modify our terms and expectations as we proceed. Student feedback is welcome at any point.

A tangent: Students often ask whether they should learn R or Python. This question is understandable because R and Python overlap in some areas. Python is a great general-purpose toolkit and the best language for many data-related tasks. R is a specialist language designed expressly for the purposes of data analysis, data visualization and model estimation. This class will focus more on visualization and estimation, which is why we will focus on R. Its strengths will be readily apparent when we get into model estimation. Our answer to the question above is that you should learn both R and Python, and then choose the right tool for each particular task. We further advise that a successful career in analytics requires frequent re-tooling, so you should embrace proficiency in that process in its own right.

Topics

Here is our weekly schedule.

1. Course Introduction & R
2. Customer Data & Data Visualization
3. Market Segmentation
4. Market Mapping & Conjoint Analysis
5. Demand Estimation
6. Heterogeneous Demand Estimation
7. Price Optimization
8. Branding
9. Customer Revenue
10. Customer-based Corporate Valuation
11. Final Exam

Deliverables and Grading

Grade are calculated as :

- quizzes (60%)
- final exam (30%)
- attendance & intermissions (10%), with opt-out available

Assignments: We will provide weekly assignments asking you to modify class scripts, and consider the resulting insights learned about the product, market, and customers. You will submit your R scripts and answers as part of the weekly quiz. Answers and script output will need to match for full credit.

Quizzes: We will require weekly quizzes after our second class meeting. Quizzes will be completed online with deadlines shortly before the subsequent class. Quiz questions may test your understanding of the previous week's class content, ask you to apply key ideas from that week's reading, and submit your answers to that week's assignment.

Final Exam: The final exam will assess reading comprehension, require understanding material presented in the discussions, and draw heavily from the assignments. The exam questions will mimic the style of the quiz questions, so the best way to prepare for the exam is to complete the quizzes throughout the quarter. The exam will be open-book, open-notes, so it should not require extensive preparation.

Attendance & Intermissions: We require and assess regular attendance.¹ We also assess student "Intermission" deliverables that are turned in during class meetings.

Attendance opt-out: Attendance is required by default, but you may opt out prior to the second class meeting by notifying us on Canvas. Then the attendance portion of your grade will be dropped when we calculate the average. We will record class meetings and post recording links on Thursdays, so students who miss class can still follow the material.²

Contribution adjustments: A few students' final grades will be adjusted based on class contributions, up to one full letter grade. An example of a positive contribution would be helping to consistently move the class discussion forward, or pointing out when something is unclear. Examples of negative contributions include distracting others, tardiness, nonconformance to classroom norms or comments that distract from class discussions. Contribution grade adjustments will be reserved for outliers.

Curve and Bonus: The average grade will be curved to somewhere between a B and A-, depending on the the section's overall performance. Each student's lowest quiz score will be dropped if 67% of CAPE evaluations are completed.

¹We did not assess attendance or participation in an earlier iteration, but then observed that live class attendance correlated with final grade averages at 0.46, suggesting that attending class attendance may facilitate learning.

²Please note, it is possible that technical problems could interfere with that process.

Course Policies

Late Enrollment: Students who add the course after week 1 are individually responsible for immediately catching up on all class content and deliverables.

Collaboration: We will assign 5-person study groups prior to our week 2 class meeting. Assignments can be worked on collaboratively within study groups, but students remain individually responsible for their own quiz answers and R scripts. There will not be any collaboration available on the final exam.

Late Submissions: Late deliverables will only be accepted in grave circumstances with documentation, such as a doctor's note for serious illness, with notification required prior to the deadline. If you find yourself in such a situation, we encourage you to briefly notify us on Piazza, then focus on taking care of yourself and your family, while trusting that you will later provide appropriate documentation and we will agree on a reasonable extension that accommodates your situation.

Recommendations: Professor is willing to write a strong letter of recommendation for Masters programs in business or social science for any student that earns an A. Professor is willing to write a strong letter of recommendation for Ph.D. programs for any student that earns an A+. Professor is not qualified to write recommendations for graduate programs outside of business or social sciences.

Re-grade Requests: Any request for regrading must be made in writing within two weeks of a deliverable being assessed, or the end of the quarter, whichever comes first. The professor and/or TA will entirely regrade any such deliverable, meaning that the resulting grade change may be positive or negative, depending on the specifics of the situation.

Important UCSD Topics

We will adopt all of the following university policies within our course.

Academic Integrity

Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating, or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying, or dishonesty will be reported to the Academic Integrity Office and will result in sanctions. Sanctions can include an F in this class and suspension or dismissal from the University.

Integrity of scholarship is essential for an academic community. As members of the Rady School, we pledge ourselves to uphold the highest ethical standards. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind.

You can learn more about academic integrity at:

<https://academicintegrity.ucsd.edu/>

The complete UCSD Policy on Integrity of Scholarship can be viewed at:

<http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2>

All aspects of the UCSD honor code apply in this course. If you are ever unsure how they apply, please ask your classmates, TA, or professor for clarification. It is much better to be conservative about honor code violations than to take a risk. You can be suspended or expelled for cheating.

We will use automated means to detect plagiarism of submitted R scripts after week 10. Please do not share any R script outside of your own study group, as you cannot control what someone else may do with it.

Students with Disabilities

A student who has a disability or special needs and requires an accommodation in order to have equal access to the classroom must register with the Office for Students with Disabilities (OSD). The OSD will determine what accommodations may be made and provide the necessary documentation to present to the instructor and OSD liaison.

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter (paper or electronic) issued by the OSD. Students are required to discuss accommodation arrangements with instructors and OSD

liaisons in the department 72 business hours in advance of any exams or assignments. No accommodations can be implemented retroactively.

Please visit the OSD website <https://osd.ucsd.edu/portal/tutorial.html> for further information or contact the Office for Students with Disabilities by phone at 858-534-4382 or via email at osd@ucsd.edu.

Non-Discrimination Policy Statement

The University of California, in accordance with applicable Federal and State law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy, physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services. The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities.

Title IX

The Office for the Prevention of Harassment & Discrimination (OPHD) provides assistance to students, faculty, and staff regarding reports of bias, harassment, and discrimination. OPHD is the UC San Diego Title IX office. Title IX of the Education Amendments of 1972 is the federal law that prohibits sex discrimination in educational institutions that are recipients of federal funds. Rady students have the right to an educational environment that is free from harassment and discrimination.

You can make a complaint of harassment or discrimination – or simply make an appointment to find out more information – by contacting OPHD:

- by phone at 858-534-8298
- by email at ophd@ucsd.edu
- or online at the Overview for Students webpage

Students may feel more comfortable discussing their particular concern with a trusted employee. This may be a Rady student affairs staff member, a department Chair, a faculty member, or other University official. These individuals have an obligation to report incidents of sexual violence and sexual harassment to OPHD. This does not necessarily mean that a formal complaint will be filed.

If you find yourself in an uncomfortable situation, ask for help. The Rady School of Management is committed to upholding University policies regarding nondiscrimination, sexual violence, and sexual harassment.

Health and Well-Being

Throughout your time at UC San Diego, you may experience a range of issues that can negatively impact your learning. These may include physical illness, housing or food insecurity, strained relationships, loss of motivation, depression, anxiety, high levels of stress, alcohol and drug problems, feeling down, interpersonal or sexual violence, or grief.

These concerns or stressful events may lead to diminished academic performance and affect your ability to participate in day-to-day activities. If there are issues related to coursework that are a source of particular stress or challenge, please speak with your professors so that we are able to support you. In addition, UC San Diego provides a number of resources to all enrolled students, including:

- Counseling and Psychological Services: 858-534-3755 or caps.ucsd.edu
- Student Health Services: 858-534-3300 or studenthealth.ucsd.edu
- CARE at the Sexual Assault Resource Center: 858-534-5793 or care.ucsd.edu
- The Hub Basic Needs Center: 858-246-2632 or basicneeds.ucsd.edu