Syllabus

MGT 100: Customer Analytics

Winter 2025

Welcome

We welcome everyone to this course. We want all students to feel valued, respected, and safe.

We also want you to succeed! We will work hard to help make that happen; we have good intentions toward you. However, this is not an easy class for most people, as we cover challenging material quickly. You will need to participate actively. This means engaging with readings, analytic tools, your instructors, and your peers. Rest assured that virtually all students pass this course and, we hope, learn a lot along the way.

This course was designed from scratch by UCSD faculty[1] for quantitative UCSD students. It serves as a core course in the joint Econ/Rady Business Economics major and as an alternate core course in the Business and Marketing minors. We actively work to maintain, update, and improve the course every time we teach it. We have received overwhelmingly positive comments about the value of the course, the style in which we've taught it, and the skills students gained as a result of studying this material. We endeavor to provide you the same challenging yet enjoyable experience.

Instructors

Prof. Dan Yavorsky
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- cell: 951-201-0927
- links: bio | website | linkedin
- office hours: Fridays or over zoom by appointment, just email me

Teaching Assistant
- **Anoop Singh**: email | linkedin
- office hours: Thursdays 8-9pm via Zoom.

Logistics

Class is **9:30a-12:20p** (Sec A) or **12:30p–3:20pm** (Sec B) on **Fridays** in **WFH 1N108**. Lectures can be attended virtually and will be recorded via Zoom (**Sec A**) (**Sec B**). Recordings will be posted to Canvas approx 24 hours after class.

All materials for this course – including books, articles, videos, blogs, and visualizations, as well as slides, R code scripts, and datasets – are **free** and available on (or linked from) Canvas (**Sec A**) (**Sec B**).

The primary method of Q&A will be **Piazza**.

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[1]This course was co-designed with the amazing UCSD Professor Ken Wilbur. Materials for his version of the course are available online at https://kennethcwilbur.github.io/mgt100/.

Course Introduction

Customer Analytics is the use of customer data — often combined with domain knowledge, relevant theory, and statistical modeling — to inform and improve business decision-making. Our primary goals are to develop student understanding of data-driven business decision making, and to enable students to perform and interpret analytic techniques whose results inform those decisions.

In pursuit of those goals, our course design principles are *experiential* learning and assessment of applications. Half our time will be spent discussing key concepts in customer analytics. The other half will be spent implementing those ideas by conducting analysis. Our mentors instilled in us the idea that "you don't understand it until you code it," and we, in turn, aim to propagate this belief with the next generation of scholars. Implementation will all be done in the programming language R.

Class meetings will have a regular format. Each class session we will include a lecture followed by an analytic (i.e., coding or programming) demonstration. During the demonstration, we will step through an R code script to implement techniques from that session's lecture.

Outside of the classroom, students will complete required readings and homework assignments consisting of a set of analytic tasks similar to what was demonstrated in class. Students will submit mini-quizzes to evaluate their weekly effort. There is no midterm; there will be a final exam.

This is designed as a survey course: we cover a broad range of topics in limited depth, although we maintain a deeper through-line that investigates demand modeling and usage. The survey nature of the course is more typical of graduate business courses than the undergraduate economics courses many students will have taken previously.

We seek to simulate a professional experience. We therefore expect consistent, regular attendance and participation. We require no memorization, encourage collaboration, and will aim to provide sufficient time and resources to complete deliverables.

We understand that student financial resources are often limited. We rely exclusively on materials that are either free or already paid by your tuition. We then provide pointers to additional or advanced material for students interested in deeper learning.

Most students will need to commit 5–10 hours per week outside of class to have a successful experience. Student feedback is welcome at any point.

Topics

We address the following topics. Please see the associated Canvas module for each topic to find related materials and more information.

1. Introduction to Course & R
2. Customer Data & Data Visualization
3. Market Segmentation
4. Dimension Reduction and Market Mapping
5. Demand Estimation
6. Heterogeneity
7. Price Optimization
8. Branding
9. Market Sizing and Customer Lifetime Value
10. Customer-Based Corporate Valuation

Assignments and Grading

Homeworks and Quizzes (60%): Each week except the first, there will be a quiz. The quiz questions will (1) cover topics and ideas from that week's assigned readings, (2) require you to submit results from implementing (on data with code) analytic techniques, and (3) ask you to interpret the analytic results or consider the resulting insights about the product, market, or customers. As part of the quizzes, you will submit your R scripts, which will be reviewed to ensure active engagement with the material, to award partial credit, and to ensure honest, individual effort (i.e., to check for plagerism).

Final Exam (40%): There will be a final exam. It will assess comprehension of the readings, require understanding the material presented in the lectures, and draw heavily from the assigned homework. Additional details about the final exam will be announced toward the end of the course.

Grade Calculations: The median grade will be curved to a B+. If more than 80% of SET evaluations are completed, some bonus will be applied. In the past, the bonus has been a positive adjustment to the curve or to drop each student's lowest (non-zero) quiz score. Individual grades may be adjusted upwards or downwards for consistent behavior as described below.

Course Policies

Attendance: We strongly recommend regular attendance and participation, but we will not formally assess them. It is imperative to keep pace with the course and not fall behind. You should proactively anticipate and manage issues you might experience in balancing your efforts across other courses or obligations.

Collaboration: All assignments except the final exam may be worked on in collaboration with other students. Collaboration is optional and groups should be small. Each student is individually responsible for creating their own woek and submitting their own answers or results.

Contacting Instructors: Use Piazza to ask questions about course content and homeworks publicly so that both the instructors and other students can provide answers. For individual matters (illness, questions about grading, etc.) please email the instructor and cc the TA(s) (or vice-versa); do not email us separately.

FinAid Survey: In the last question of the FinAid Survey during week 1, you can receive extra credit for this course by submitting "Bigfoot is real" along with any additional answer to the question. Please do not inform your fellow students of this.

Class Participation: Letter grades may be adjusted based on engagement: e.g., positive contribution would be helping to consistently move the class discussion forward; negative contributions include disengagement with the course, distracting others, or nonconformance to course or classroom norms.

When Struggling: We understand that student learning styles differ and no single approach is best for everyone. We also know that anyone can go through a difficult time. Please tell us if you have trouble learning in this environment. We may be able to make suggestions, connect you with resources, or find appropriate accommodations. We will work with you as best we can.

Use of AI Technology: We explicitly allow use of AI technology (e.g. ChatGPT). We caution that you are responsible for content and accuracy of your submitted work. It is plagiarism and a violation of UCSD Policy on the Integrity of Scholarship to copy work created by someone else (or their technology) and pass it off as your own. Relevant additional information is available in the FAQ of (academicintegrity.ucsd.edu).

Late Submissions: Late deliverables will be accepted for partial credit; full credit may only be obtained in grave circumstances with some form of documentation provided prior to the deliverable due date.

Re-grade Requests: Any request for regrading must be made in writing within two weeks of a deliverable being assessed but before final course grades are submitted to the Registrar. The professor and/or TA(s) will entirely regrade the deliverable such that the resulting grade change may be positive or negative.

Important UCSD Topics

We adopt the following policies based on university guidance.

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.

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.

NonDiscrimination 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