

Syllabus

MGTA 495: Marketing Analytics

Spring 2026

Instructional Team

Dan Yavorsky

- email: dyavorsky@ucsd.edu
- links: [website](#) | [linkedin](#) | [bio](#)

The professor for this course is Dan Yavorsky. Dan holds an MBA and PhD from UCLA Anderson and has 15 years of experience applying analytic and econometric techniques at consulting firms, including Bain & Company. He is currently a Senior Vice President and the Head of Analytics at GBK Collective, a marketing strategy and consumer insights firm.

Dan tries very hard to spend most of his time playing soccer with his kids, cycling with his brothers, sipping bourbon with his wife, and curating his collections of mechanical keyboards, grandfatherly pocket knives, boots, and statistics textbooks. In reality he spends most of his time consulting, teaching, raising kids, and trying to keep up with AI.

Peichen Heather Li

- email: hel058@ucsd.edu
- links: [linkedin](#)

The TA for this course is Peichen Heather Li. She is finishing her PhD in management at UCSD Rady after completing her MA in Industrial Organizational Psychology from NYU. Her research explores factors that influence how people adopt feedback from AI systems.

Logistics

- We meet Fridays 1-4pm in 1E107
- Office Hours via Zoom; please email to schedule
- Students complete 6 problem sets, submitted as blog posts to their personal websites
- Students present once during class
- There are no exams

All materials for this course are on Canvas: <https://rady.instructure.com/courses/2032>

Course Introduction

Expert analysts are statistically knowledgeable, technically adept, and effective when communicating. This course is designed to enable students to develop in each of those three areas.

Marketing and consumer insights. We structure the course around five marketing challenges that analysts regularly face in practice: designing experiments to measure causal effects, measuring consumer preferences with surveys, setting prices using conjoint analysis, identifying customer segments, and determining which business practices drive customer satisfaction. For each topic, we examine the business context, the decisions at stake, and the strategic implications of the analysis. The goal is for students to develop the judgment to know which analytic approach a given marketing problem calls for, and the ability to execute it.

Statistical knowledge. Each marketing topic is paired with a statistical methodology. I firmly believe that *you don't understand it until you code it*. In that regard, the analytic and statistical techniques will be implemented “by hand” and then compared to the results from routines readily available in software packages. This enables students to understand the underlying assumptions and mechanics of the techniques, the limitations of the canned routines, and how they might approach an extension or modification to canned routines when the need arises.

Technical proficiency. The computer is the analyst’s primary tool. Much as a musician must be fluent with their instrument(s), expert analysts must be *fluent with the tools of their trade* — the terminal, the editor, the version control system — so that these instruments become extensions of their thinking rather than obstacles to it. Students begin the course using Quarto, Git, and the Command Line to build a personal website, which will serve as a portfolio for their work in this course. We will discuss additional technical tools as the opportunity arises, and students will be asked to develop familiarity with those tools as the course progresses.

Effective communication. Each marketing topic is followed by an application where students implement (in a programming language of their choice) the statistical technique on a dataset and interpret their results to inform a marketing strategy. Students develop their written communication by reporting their approach, results, and recommendations in blog posts on their personal websites. Students develop their verbal communication through short presentations related to the results of their analyses or their use of technical tools to achieve those results.

The course simulates a professional experience within the classroom and therefore requires no memorization, encourages collaboration, and ensures extensive resources (but limited time) to complete deliverables.

Assignments and Grading

This course operates on a points-based system. There are 100 total points.

Points by Component

Category	Points	Detail
Attendance (10 sessions)	20	2 pts per session
Assignments (6)	62	Scored per the table below
Presentation	8	Completion and quality
Website + Participation	10	Site built on time, engagement, eval submitted

Points by Assignment

Marketing Topic	Stat Topic	Late/Inc.	Complete	Strong	Excellent
1. AB Testing	Causality	2	4	6	8
2. Natural Experiments	Classical Stats	2	4	6	8
3. MaxDiff Ranking	Maximum Likelihood	3	7	9	11
4. Pricing + Conjoint	Bayes	4	7	10	13
5. Key Drivers	Supervised ML	3	7	9	11
6. Segmentation	Unsupervised ML	3	7	9	11

Grade Cutoffs

- **A:** 85 points or above
- **B:** 66–84 points

Plus/minus grades (e.g., A-, B+) may be assigned at the instructor's discretion.

There are no exams.

Topics

Core marketing and statistical topics

1. **Experimentation and Causality** (Classical Frequentist Statistics)
 - Marketing: A/B testing, multi-armed bandits, and non-experimental causal methods
 - Statistics: LLN, CLT, p-values, confidence intervals
 - Methods: t-tests, regression, RDD, diff-in-diff
2. **Consumer Preference Measurement** (Maximum Likelihood Estimation)
 - Marketing: survey design and Best-Worst Scaling
 - Statistics: the likelihood function, optimization, and inference
 - Methods: GLM regressions, Normal, Logit, and Multinomial Logit models
3. **Pricing with Conjoint Analysis** (Bayesian Statistics)
 - Marketing: conjoint survey design and willingness-to-pay estimation
 - Statistics: priors, likelihoods, and posterior distributions
 - Methods: Markov Chain Monte Carlo and hierarchical models
4. **Customer Segmentation** (Unsupervised Machine Learning)
 - Marketing: identifying and profiling customer types for targeting strategy
 - Statistics: distance metrics, model-based clustering, and goodness-of-fit
 - Methods: K-means, hierarchical clustering, and mixture models
5. **Key Drivers of Customer Satisfaction** (Supervised Machine Learning)
 - Marketing: identifying which business practices matter most
 - Statistics: cross-validation, model selection, and variable importance
 - Methods: tree-based models, regularized regression, and Shapley values

Technical tools that may be explored

System navigation

- Terminals, command line prompts, command line utilities (eg, **fzf**)
- Raycast/Flowlauncher, Aerospace/GrazeWM

Authoring technical documentation

- Markdown, Quarto, Latex, Obsidian
- VS Code, Positron, Vim, Zed, Helix, LSPs, linters, interpreters

Version Control

- git, GitHub, command line utilities (**gh**), IDE elements

Course Policies

Attendance

Attendance is formally assessed. You may either attend:

- **In person:** Submit a selfie to the Canvas quiz during class.
- **Panopto** (Live or Recording): Enter the passphrase (shared during class) in the Canvas quiz.

I strongly recommend in-person attendance, as it facilitates engagement and collaboration, but full attendance credit will be awarded for remotely attending lectures or watching their recordings.

Collaboration

All assignments may be worked on in collaboration with other students. Collaboration is optional and groups should be small. Each student is individually responsible for creating and submitting their own work.

Contacting Instructors

Please always email the instructor and cc the TA (or vice-versa); do not email us separately. If students would like a public discussion forum, I'm happy to enable the Canvas Discussion Board or set up a Piazza site.

Use of AI Technology

The use of AI tools is encouraged in this course. These tools are part of the modern analyst's workflow and learning to use them effectively is a valuable skill. Use them to help you understand concepts, debug code, draft writing, and explore ideas. That said, you are responsible for the content of your work and must be able to explain and defend the content of your submissions.

Late Submissions

The stated policy is that late deliverables will only be accepted in grave circumstances with documentation and some form of notification prior to the deliverable due date. However, at the discretion of the professor and TA, an assignment may be accepted late for partial credit. It should be rare that any student requests this and there is no guarantee that such a request will be granted.

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 or TA will entirely regrade any such deliverable, meaning that the resulting grade change may be positive or negative.

Schedule

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
3/29	3/30	3/31	4/01	4/02	4/03 Class 1-4p Class Intro Quarto Websites	4/04
4/05	4/06	4/07	4/08 Markdown Example Due	4/09	4/10 Class 1-4p Causality A/B Testing	4/11
4/12	4/13	4/14	4/15 Websites Due HW1 Due	4/16	4/17 Class 1-4p Classical Stats Natural Experiments	4/18
4/19	4/20	4/21	4/22 HW2 Due	4/23	4/24 Class 1-4p MaxDiff Maximum Likelihood	4/25
4/26	4/27	4/28	4/29 Pull Request Due	4/30	5/01 Class 1-4p Pricing + Conjoint MNL Model	5/02
5/03	5/04	5/05	5/06 Take Maxdiff Survey	5/07	5/08 No Class	5/09
5/10	5/11	5/12	5/13 HW3 Due	5/14	5/15 Class 1-4p Bayesian Stats Intro Bayesian Regression	5/16
5/17	5/18	5/19	5/20 HW4 Due	5/21	5/22 Class 1-4p Segmentation Cluster Analysis	5/23
5/24	5/25	5/26	5/27 HW5 Due	5/28	5/29 Class 1-4p Supervised ML Key Drivers Analysis	5/30
5/31	6/01	6/02	6/03 SET Eval Due HW6 Due	6/04	6/05 Class 1-4p Presentations	6/06

Important UCSD Topics

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](#) 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