454 B – Marketing Analytics

Please see RAPS for classroom and meeting schedule.

Course Description

The key question underlying this course is:

"What variation in your data answers your question?"

Variation in your data is key to answering any question. If you want to estimate how changes in price affect sales, you need to observe sales at multiple price points—that is, price must *vary* in your dataset. If you only ever observe one price, you cannot answer how price changing will affect sales. You've never seen price change, so how could you possibly know what will happen to sales when it does?

This course teaches you to think in two directions. First, if you want to answer a question, it trains you to think about what data you'd need to do so. Second, if you have data, it teaches you how to think about what questions you can answer with it. It does this primarily by exposing you to different questions and datasets from different industries and topics. You'll take a dataset and figure out which questions you can answer with it, or you'll be given a question and data and try to figure out how you use the data to answer the question.

We'll do this over and over again, but in different settings each time. You can think of this course as a means through which you build a mental library of references. You won't necessarily be replicating the specific analyses we do for this course in your future careers, but each example you come across is one from which you can extrapolate from in the future.

At the end of the day, no one marketing analytics course can provide experience with all analytical tools each student will use at their next job, as each person's work environment will differ. What a course *can* do is train each student how to *think* about marketing problems and data, to facilitate rapid emersion in their post-graduation analytics environment, and provide a foundation for making smart, data-driven decisions.

Requirements

Prerequisites:	Stats Core (203A) or equivalent
Software:	Microsoft Excel (required)
Optional Texts:	Statistics for Management and Economics by Gerald & Keller (203A text)

There is no required textbook for this course.

Difficulty Level

This is not an introductory course – it is an intermediate course that presumes solid familiarity with statistics and some experience working with data. Having a strong understanding of linear regression by the end of session two is necessary. This is easier if you have already taken 203B or 454A, but not strictly required. If you received a B- or lower in the stats core, I would **strongly recommend** you take 203B and/or 454A before taking this course.

That said, I do not wish to be discouraging. Some of the students who have performed best in the class previously did not have a strong stats background. They supplemented the in-class material with reading and office hours. I am happy to meet with you via zoom to help one-on-one, or with your group.

Course and Assignment Schedule

This course has little in the way of reading. In lieu of that, it is heavier on post-class homework. However, each assignment is typically started in the final hour of class as a group. One assignment is an individual assignment to ensure each student develops the basic statistical skills for the course. Three others are group assignments in which students will work together to apply those skills to a real-world case.

The first (individual) assignment will follow the more traditional format of statistics course homework, favoring repetition and commitment of technique to memory. Group cases, by contrast, are not like those in traditional stats courses. Because the primary objective of this course is to improve your thought process for tackling analytical questions, little emphasis is placed on memorization of substantive learnings; rather, emphasis is placed on developing your ability to think about data. This means that I don't expect you to be able to answer all case assignment questions perfectly on a first pass, because the value of the assignment is not retrieving a fact from memory, but the experience of trying to think through the problem.

Assignments are always due at 8 am the day of class. See the above schedule for specific due dates for each assignment. Assignments should be submitted on Canvas in Word or PDF format, with all statistical output, tables, and figures included either in the appropriate part of your write-up, or in an appendix and referenced in your write-up.

Weekly Schedule: Topic, Readings, and Assignments

Week	Topic	Reading Due	Assignment Due
1	Empirical Identification	G&K (203A)	n/a
2	Heterogeneity & Cohorts	n/a	HW 1: Applied Regression
3	Dynamics	n/a	Group Case 1: Heterogeneity
4	Discrete Choices	n/a	Group Case 2: Dynamic Pricing
5	In-Class Case	n/a	Group Case 3: Discrete Choices

Grading

Each assignment is worth 25% of your grade. Attendance and participation are a part of your grade, but their effect is non-additive: Missing one class will cap your grade at 90% (if you score a 93%, your grade will be reduced to a 90%). Missing a second will cap your grade at 70% (likely in the range of C- to C+, depending on the curve). You cannot pass the course if you miss three classes, as you will have missed more than half the material we cover. Absences can be excused under certain circumstances, in which case you will not lose points. Note that GSM events such as Big Bang are announced sufficiently far in advance that you will know whether or not this course conflicts with events of interest to you. Absences for GSM events will therefore not be excused, consistent with GSM policy.

It is the student's responsibility to ensure their homework files have been uploaded to Canvas in a manner readable by the professor. **Unreadable or incorrect file submissions (e.g., accidentally submitting the wrong document) will receive a zero**. You can check your submission by downloading it from canvas after uploading it. This rule exists because of an uptick in students (globally, not the GSM specifically) attempting to use imitation "corrupted" files as a placeholder assignment to buy time.

Team Formation

Students will self-select who they wish to work with; no one will be forced to work with anyone else. Teams should consist of **no more than three students**. You may work alone if you wish or if you cannot find a team. In the event that a team is not working well together, or you feel that a teammate is free-riding, you are not required to work with the same team for each assignment. For any given assignment, you decide who you want to work with, then submit your assignment as a group with each participating member's name on it.

In short, you can work with (or not work with) anyone you want to for each assignment, subject to the team size constraint.

UC Davis and GSM Policies

Notice of the Code of Academic Conduct

Students are expected to conform with the code of academic conduct, which can be found here:

http://sja.ucdavis.edu/files/cac.pdf

Academic Affairs, as well as the Academic Director of the MBA Program, will be notified of any violations, and will take appropriate action.