UCLA Anderson

MGMT 402: Data & Decisions

Fall 2020

COURSE INFO

Instructor	Professor Elisa Long
Email	elisa.long@anderson.ucla.edu
Office hours	Fridays 9:00–11:00 am
Course times	Wednesdays 8:00–11:00 am (Section A) and 1:00–4:00 pm (Section C) A recurring Zoom link for each section is posted on CCLE
Course website	https://ccle.ucla.edu/course/view/20F-MGMTFT402-1
Teaching assistant	Zach Siegel (Anderson PhD student)
Email	zachary.edmund.siegel@gmail.com
Review sessions	The TA will lead optional review sessions to discuss additional examples.

COURSE DESCRIPTION

Business data science entails translating raw data into meaningful information that is relevant to decision-making. This course covers some fundamentals of data visualization, statistical inference, estimation, and prediction. Students will see an introduction to data analysis in R, but this is not a comprehensive programming course, and *no prior experience with R is required*.

LEARNING OBJECTIVES

At the end of the course, students will be able to:

1. Generate summary statistics and graphs from raw datasets.
2. Formulate an A/B test using raw data on a micro-experiment between two groups and test for statistical significance.
3. Describe a dataset and analyze linear relationships between variables.
4. Run a logistic regression and compute model accuracy in an out-of-sample test.

CLASS PREPARATION

To prepare for each class, you should read the relevant sections of Modern Dive and any additional readings posted on CCLE. If you are new to data analysis and programming, I *highly recommend* completing the accompanying exercises in Modern Dive. All due dates for individual assignments, quizzes, and group cases will be clearly posted on CCLE.

ZOOM ETIQUETTE

- Have a working webcam and microphone.
- Keep your video on, but mute your microphone (unless speaking) to avoid background noise.
- Use the Raise Hand and Chat features in Zoom, and I will do my best to monitor these.
- Please keep your attention on the live class discussion, and save any online shopping, Netflix, and laundry for after class.
- Please be professional and respectful of your fellow classmates, the TA, and instructor. We are all trying our best to make this classroom experience as valuable—and enjoyable—as possible. Your patience is greatly appreciated!
- Some additional tips: https://thewirecutter.com/blog/professional-video-call-from-home/

COURSE MATERIALS

Course reader

Required cases may be purchased for $16 here: https://ucla.redshelf.com/book/1635383

Software

Although we will mostly focus on describing data and interpreting results, I will conduct some in-class demos using R Studio. We will really just scratch the surface of R's capabilities but you are encouraged to follow along.
First, download and install R here: https://cloud.r-project.org/
Second, download and install R Studio here: https://www.rstudio.com/products/rstudio/download/

Online book

[MD] "Modern Dive into R and the Tidyverse" by Ismay and Kim
This online book includes many online tutorials on data visualization and data analysis in R.
Free at https://moderndive.com/

Additional suggested books

[BS] "Business Statistics with Solutions in R" by Akinkunmi
This is a very brief intro to some essential business stats tools with lots of R examples.
$30 at https://amazon.com/Business-Statistics-Using-Mustapha-Akinkunmi/dp/1547417463/

[PS] "Practical Statistics for Data Scientists" by Bruce and Bruce (1st or 2nd edition)
This includes more tools for data science, but has limited examples in R.
$41 at https://amazon.com/Practical-Statistics-Data-Scientists-Essential/dp/149207294X

UCLA POLICIES

Academic Integrity

The use of any materials from a previous year or another section this year (including other MBA, FEMBA, EMBA sections) is strictly prohibited. This includes exams, homework solutions, spreadsheets, and handouts distributed by Anderson faculty or students in written or electronic form. The policy includes posting/downloading any course material to websites or shared folders. Access to such materials creates serious inequities between fellow students, and jeopardizes academic integrity. The UCLA Anderson Honor Code will apply at all times.
http://www.anderson.ucla.edu/Documents/areas/adm/web/AndersonHonorCode.pdf

Code of Conduct

All participants in the course are bound by the UCLA Student Conduct Code.
https://www.deanofstudents.ucla.edu/portals/16/documents/uclacodeofconduct_rev030416.pdf

Center for Accessible Education

The UCLA Center for Accessible Education (CAE) facilitates academic accommodations for regularly enrolled, matriculating students with documented permanent and temporary disabilities. Accommodations are designed to promote successful engagement in the UCLA academic experience. Please visit http://www.cae.ucla.edu/ for additional information or email me if you have questions.

FEEDBACK

I have taught Data and Decisions 25 (!) times over the past 9 years, but this is my first time teaching it on Zoom. I will try my absolute hardest to make the class a positive experience for everyone. In return, I ask for your undivided attention each week and engagement in class discussions. If anything is unclear or if you have constructive feedback, please let me know as soon as possible, so that I may revise the course as we go along.

ASSIGNMENTS AND GRADING

Course grades will be determined as follows:

Data Visualization (Individual)	10%
Quizzes (Individual)	20%
Cases (Group)	30%
Final Project (Group)	20%
Peer Assessment (Individual)	10%
Class Participation (Individual)	10%

In this time of remote learning, Anderson has relaxed the grading curve as follows:

A+, A, or A- (no more than 50% of students)
B+, B, or B- (at least 50% of students)
Below B- (if warranted)

Data Visualization (10%)

There are 2 data visualization assignments, to be completed individually. You should create 1 Powerpoint slide showing a data plot (eg, line graph, bar chart, scatterplot, etc). You are encouraged to try using `ggplot` in R for this, or Excel is fine. I will provide several datasets for you to select from on CCLE.

Quizzes (20%)

There are 5 online quizzes, but only your top 4 scores will count towards your final grade. Quizzes should be completed individually with no outside discussions. These are intended to be concept checks of course material and should not take much time. After I post the questions, you will have 48 hours to submit your answers.

Cases (30%)

There are 3 cases to be completed within your study group:

1. Innovation at Uber (10%)
2. Real Estate (10%)
3. Nomis (10%)

Cases are available in the Course Reader. Additional instructions and questions will be posted on CCLE.

Final Project (20%)

Groups should apply one or more analytics tools from class to a real-world dataset, to test a particular hypothesis and present supporting figures and analyses. Each group will be matched with ~2 EMBA students (from my other section) and work on a real problem proposed by them. If data are not available due to privacy concerns, then teams may select a publicly available dataset to analyze. Each team will give a 15-minute presentation to Professor Long during Finals week and submit any related code or analyses. This project aims to (a) provide an opportunity for collaboration between full-time and EMBA students, and (b) afford an experience working with a diverse team on a mini consulting-type project and synthesize your findings.

Peer Assessment (10%)

Given our online presence this year, the course deliverables are more heavily group-based. As such, each team member will assess the contributions of your fellow team members at the end of the quarter.

Class Participation (10%)

Students should aim to attend every class session and be prepared to contribute to class discussions. If you are uncomfortable with speaking up on Zoom, you may also contribute to the CCLE online discussion boards.

COURSE OUTLINE

Class	Date	Topic	Modern Dive Sections	Optional reading*	In-class exercise	Weekly Assignment
1	Wed, Sep 30	Descriptive Statistics, Data Visualization	1-2	BS: Chapters 1,3 PS: Chapter 1	Movie Revenues	Data Visualization #1
2	Wed, Oct 7	Probability Definitions, Bayes' Rule		BS: Chapters 4, 5.1-5.2, 6	COVID Testing	Quiz #1
3	Wed, Oct 14	Normal Distribution, Sampling	Appendix A.2, 7, 9	BS: Chapters 7-9	Polling	Quiz #2
4	Wed, Oct 21	Hypothesis Testing, p-values, t-tests	9	BS: Chapter 10	Vioxx, A/B Testing at Vungle (read before)	Quiz #3
		DOJ break (no class)				
5	Wed, Nov 4	A/B Testing		PS: Chapter 3		Case: Innovation at Uber
6	Thu, Nov 12	Correlation, Simple Regression	5	BS: Chapter 11	Nobel Prizes	Quiz #4
7	Wed, Nov 18	Categorical Variables	6	PS: Chapter 4	Wine Prices	Quiz #5
8	Wed, Nov 25	Multiple Regression	6	PS: Chapter 4	Diversity in Hollywood	Case: Real Estate
9	Wed, Dec 2	Logistic Regression		PS: Chapter 5	PriceMart (read before)	Data Visualization #2
10	Wed, Dec 9	Intro to Machine Learning, Classification		PS: Chapter 8	MBA Salary Gap	Case: Nomis
	Dec 14-18	Final Presentations to Prof. Long				

* Optional readings are suggested if you would like more information about a particular topic.