

**INSTRUCTOR**

**Professor Elisa Long**  
Gold Hall, Room B508  
[elisa.long@anderson.ucla.edu](mailto:elisa.long@anderson.ucla.edu)  
Office hours: Wednesdays 4-6pm

**CLASS TIMES**

Tuesdays & Thursdays, Room C315  
9:45am – 11:15am (Section B)  
12:45pm – 2:15pm (Section C)  
2:30pm – 4:00pm (Section E)

**TEACHING ASSISTANTS**

**Nishant Dani** (Section B)  
[nishant.dani.2019@anderson.ucla.edu](mailto:nishant.dani.2019@anderson.ucla.edu)

**Kevin Brazitis** (Section C)  
[kevin.brazitis.2019@anderson.ucla.edu](mailto:kevin.brazitis.2019@anderson.ucla.edu)

**Bhavna Tripuraneni** (Section E)  
[bhavna.tripuraneni.2019@anderson.ucla.edu](mailto:bhavna.tripuraneni.2019@anderson.ucla.edu)

**COURSE WEBSITE**

<https://ccle.ucla.edu/course/view/18F-MGMT402-2>

**OVERVIEW**

Business decisions are made with partial information and in an uncertain environment. This course's objectives are (a) to introduce data analyses for generating information useful in decision-making and (b) to provide a framework for analyzing decisions based on partial information. To achieve these objectives, we will develop a foundation of probability and statistics, which is also necessary for subsequent courses and for a management career.

The course is organized into three areas:

1. **Probability Theory:** basics of probability, joint and conditional probability, Bayes' Rule, discrete random variables, continuous random variables, sums of random variables, Uniform and Normal distributions, expected value, variance.
2. **Decision Analysis:** problem framing, evaluation using expected monetary value, value of information.
3. **Statistics:** descriptive statistics, sampling, hypothesis testing, interval estimation, statistical inference, simple and multiple regression, predictions.

**CLASS PREPARATION**

Classes will be a mix of lectures, examples, and problem solutions. Students are expected to attend every class and be fully prepared to actively participate in discussions. To prepare for each class, you should read the relevant textbook sections, read any additional problems posted on CCLE, and complete the required homework or group assignment due in class.

## EXAMS

There is 1 midterm and 1 final examination. Both exams are closed book, closed notes, no laptops, cell phones, or networked devices. You will need a scientific calculator for the exams, and you are permitted to bring 1 double-sided 8.5 x 11" sheet of notes/formulas for the midterm, and 2 double-sided sheets for the final.

## HOMEWORK

Homework assignments are intended to help with understanding class material and to give you practice with using various quantitative techniques. There will be 5 homeworks assigned (each worth 4 points) and due at the start of class. Each student should submit their individual solutions, although you are welcome to discuss the problems with your study group. For each homework, we will randomly select 2 questions and grade only those questions. Late submissions after the day of class are not accepted.

## GROUP ASSIGNMENTS

There will be 5 assignments to be discussed and completed within your study group.

**Mini cases:** Each team should submit an Excel spreadsheet and answers to questions on CCLE.

1. Super Bowl
2. Revenue Management
3. A/B Testing at Vungle

**Longer cases:** Each team should submit a Powerpoint deck (< 10 slides), presenting your findings as if you were hired as a team of consultants tasked with this project. You may include an Excel screenshot, but everything you did should be clearly and concisely explained within the presentation. Please be prepared to present/discuss your findings in class.

4. Freemark Abbey Case
5. Real Estate Case

## GRADING

Your course grade will be determined as follows:

<b>Cases and Class Participation</b>	<b>10%</b>
<b>Homework</b>	<b>20%</b>
<b>Midterm Exam</b>	<b>30%</b>
<b>Final Exam</b>	<b>40%</b>

The grade distribution will follow the standard curve in core classes:

A+ or A (20%), A- (25%), B+ or B (45%), B- (5%), C+ or below (5%)

## OPTIONAL TEXTBOOK

*Statistics for Business & Economics (13<sup>th</sup> edition)* by Anderson, Sweeney, Williams (ISBN 978-1337094160)  
[www.amazon.com/Statistics-Business-Economics-Revised-Education/dp/1337094161](http://www.amazon.com/Statistics-Business-Economics-Revised-Education/dp/1337094161)

Amazon has many options to rent or buy hardcover, loose leaf, or e-book.  
The 12<sup>th</sup> edition is also acceptable.

REVIEW SESSIONS

TAs will lead optional weekly review sessions to discuss additional examples, class material, and homework solutions.

Date	Time	Topic	Location	TA
Fri, Sep 28	10am-11am	Conditional Probability, Bayes' Rule	B313	Nish
Fri, Oct 5	10am-11am	Random Variables, Uniform, Normal	B313	Bhavna
Fri, Oct 12	10am-11am	Joint RVs, CLT	D310	Kevin
Fri, Oct 19	1pm-2pm	Decision Analysis, Midterm Review	Korn	Bhavna, Kevin
Fri, Nov 9	10am-11am	Confidence Intervals	B313	Nish
Fri, Nov 16	10am-11am	Hypothesis Testing	A201	Nur
Fri, Nov 30	10am-11am	Regression	B313	Nur
Fri, Dec 7	10am-12pm	Final Review	Korn	Nur

SOFTWARE AND LAPTOP POLICY

We will use Excel add-ins for certain course topics:

- *FSBstats* (Free, Windows only, Excel add-in posted on CCLE)
- *TreePlan* (Free trial, Windows/Mac) or *PrecisionTree* (Free trial, Windows only)  
<http://treeplan.com>                      <http://www.palisade.com/precisiontree/>

Please note: the use of laptops is not permitted during class except when explicitly announced.

HOW TO SUCCEED IN THS COURSE

This will be a fun course if you prepare for and attend every class and complete assignments thoroughly. I encourage you to keep up with the material and not fall behind. If there is something that you do not understand, please contact me or your TA or visit my office hours. As individual material, the concepts may be deceptively simple but, cumulatively, we will cover a lot of ground in this course.

If some class material is unclear, I would greatly appreciate your feedback. You are always welcome to discuss the lecture with me in person or over email.

COURSE OUTLINE

Class	Date	Topic	Textbook	In-class exercise	Assignment due in class
1	Thu, Sep 20	Descriptive Statistics, Probability Definitions	3.1-3.2 4.1-4.3*		
2	Tue, Sep 25	Conditional Probability	4.4		Super Bowl
3	Thu, Sep 27	Bayes' Rule	4.5		
4	Tue, Oct 2	Random Variables	5.1-5.3		Homework 1
5	Thu, Oct 4	Uniform Distribution, Normal Distribution	6.1-6.2		Revenue Management
6	Tue, Oct 9	Joint Random Variables, Covariance, Sums of RVs	3.5, 5.4	Stock Portfolio	
7	Thu, Oct 11	Sums of Normals, Central Limit Theorem			Homework 2
8	Tue, Oct 16	Introduction to Decision Analysis	21.1-21.2 (online)		
9	Thu, Oct 18	Value of Information	21.3-21.4 (online)	Obamacare	
10	Tue, Oct 23	Decision Analysis			Homework 3 Freemark Abbey Case
11	Thu, Oct 25	<b>Midterm Exam</b> In-class			
<b>DOJ break (no class)</b>					
12	Tue, Nov 6	Sampling	7.1-7.6		
13	Thu, Nov 8	Confidence Intervals	8.1-8.4	M&Ms	
14	Tue, Nov 13	Confidence Intervals, Hypothesis Testing	9.1-9.5	Scallops	
15	Thu, Nov 15	Hypothesis Testing	10.1-10.3	Vioxx	Homework 4
16	Tue, Nov 20	Simple Regression	14.1-14.6, 14.8	Nobel Prizes	A/B Testing at Vungle
17	Tue, Nov 27	Simple Regression			
18	Thu, Nov 29	Multiple Regression	15.1-15.7	Wine Prices	
19	Tue, Dec 4	Multiple Regression		Cars	Real Estate Case
20	Thu, Dec 6	Multiple Regression, Course Wrap-up	16.1-16.2	MBA Salaries	Homework 5
	Wed, Dec 12	<b>Final Exam</b> 8:00-11:00am			

\*Skip weighted mean, geometric mean, coefficient of variation, counting rules, combinations and permutations.