

# USC Annenberg School for Communication and Journalism

## CMGT 599 Big Data in Marketing Communication

Units: 4

Location:

Instructor: Kimberlie Stephens, PhD

Office: ASC 321g

Office Hours: Mondays before and after class and by appointment

Contact Info:

### Course Description

The availability of large quantities of data is changing the way that organizations make decisions, interact with consumers and use resources. McKinsey & Company has estimated that by 2018 there will be a shortage of 140,000-190,000 people with deep analytical skills. In addition, the United States will need another 1.5 million managers with the ability to use analysis to make good decisions (Manyika, 2011). Along with this readily available data comes the difficulty of actually learning how to use the data in meaningful ways. This requires understanding the pros and cons of different types and sources of data. It requires knowledge of the context in which the data is meant to help guide decisions. It requires a clear understanding of the objective, or question to be answered with the data. In addition, it requires a technical solution that will enable timely and accessible analysis.

This course is designed to help students begin to develop the skills necessary to understand each of these issues, and ultimately to begin to conduct thoughtful analysis on large quantities of data to make informed marketing decisions. Throughout the course, we'll discuss the different types of data that are now available, the different ways in which such data can be analyzed, how analysis can be used for making business decisions, as well as the different tools that can assist with all parts of this process. There are many areas in which data scientists can focus, and the field is nascent enough that none of these areas are extremely well defined. This course is meant to introduce students to the landscape that is now being called "big data" in an effort to aid in navigating the field as it develops.

### Learning Objectives

After completing this class, students should have:

- interpret and answer a research question by using/testing multiple strategies and angles
- describe, select, and apply intermediate-level methods of analysis like regression, logistic regression, and discriminative analysis
- clean and recode data sets
- use SPSS and/or other tools to perform statistical analysis on a provided data set
- apply a theoretical framework to data sets to connect behaviors to marketing effectiveness

**Recommended Preparation:** Experience with statistics, data analysis and marketing is helpful preparation for this course, although not required.

### Textbook and Reading Materials

There are two primary texts for this course. Additional readings will be available on the course blackboard site, in addition to an Harvard Business School course pack. The link to the coursepack will also be listed on

the blackboard site. You'll notice that readings are clustered every other week in the second half of the semester. This is intended that you'll do heavy reading for a week and then heavy analysis the next. This reflects a natural rhythm of learning and experimenting that will foster your skills as an analyst.

Provost, F. & Fawcett, T. (2013) *Data Science for Business: What you need to know about data mining and data-analytic thinking*. O'Rilely: Sebastapol, CA.

Tanner, J. (2014). *Analytics and Dynamic Customer Strategy: Big Profits from Big Data*, Wiley: NJ.

HBS Coursepack link: <https://cb.hbsp.harvard.edu/cbmp/access/32938539>

## **Assignments**

Full details of each assignment will be posted to the course blackboard page. Due dates can be found on the weekly class schedule below, as well as on the full assignment descriptions.

## **Lab Assignments**

A large component of this course will consist of lab assignments. With each topic area that we explore, we will conduct a lab assignment that provides you with an opportunity to apply what you've learned about each area. We will use different kinds of data, do different types of analysis and thinking and answer questions in different areas of marketing. Data sets will be provided.

## **Midterm exam**

You will take a midterm exam where you will be responsible for having a working knowledge of everything you've been asked to read and everything we've done in class up to the middle of the semester. The test will be conceptual in nature and will require that you've got a working knowledge of the course material. As such, any reading notes that you have taken will be permitted during the test, but questions will focus on higher order application and analysis, rather than on memorization or summarization.

## **Final Project**

Your final project for this course will encapsulate all the aspects of the course into an overarching project. Details of the project will be provided later in the semester, but you will be working in teams and working with a variety of real data. Be prepared to learn to use new tools, techniques and try new things.

## **Participation**

Active participation in this course includes doing all readings prior to class, regular attendance in class, as well as active engagement with class discussion and activities.

Please note that this course's meeting time coincides with two university holidays. Although we will not be meeting, there will still be content covered during these weeks, and assignments that must be completed in an asynchronous fashion.

In addition there will be an extended class meeting during week 15 to allow adequate time for all final presentations. Please plan your schedules accordingly, as attendance at this session is mandatory.

## Grading Breakdown

Assignment	% of Grade
Lab assignments (4)	40
Participation	15
Midterm	20
Final Project	25
<b>Total</b>	<b>100</b>

## Grading Scale

93-100	A
90-92	A-
88-89	B+
83-87	B
80-82	B-
78-79	C+
73-77	C
70-72	C-
60-69	D
>60	F

## Assignment Submission Policy

Assignments will be submitted per the instructions listed on the course blackboard site. Late assignments will be assessed a penalty of up to 10% per day.

## Course Schedule: A Weekly Breakdown

Below is a tentative schedule of topics, readings and assignments. Updates will be posted on the course blackboard site.

	Topics/Daily Activities	Readings and Homework	Deliverable/ Due Dates
<b>Week 1</b> 1/12	Introduction: What makes "big data" so big?	Provost & Fawcett, Ch 1 & 2 White House Report, Parts 1 & 4	
<b>Week 2</b> 1/19	<b>No class meeting: MLK Day</b> Big data in action: Marketing applications	Tanner (2014): Ch 1-3 What people want and how to predict it (CP) Anderson (2011); The long tail article from Wired	Blackboard discussion of marketing applications of big data. See blackboard for details.
<b>Week 3</b> 1/26	Data science fundamentals: Systems, Organizations and Analysts	Big Data Management Revolution (CP) Big data, analytics and the path from insights to value (CP) Using CRM to estimate the ... (CP) Billy Beane and the Oakland	

		A's (A) (CP)	
<b>Week 4</b> 2/2	Data science fundamentals: Promise, Problems and Policy	Boyd & Crawford (2014). Critical questions for big data White House Report, Part 5 & 6 You may not need big data after all (CP)	
<b>Week 5</b> 2/9	Data Analysis Process	Tanner (2014): Chs 4-6 Punch, ch 4 Review data process from week 1 reading from Provost and Foster	
<b>Week 6</b> 2/16	<b>No class meeting: President's Day</b> Descriptive analysis (Lab Assignment)	Punch (2004) Ch. 7 Analysis of quantitative data Online Metrics: What you are measuring and why (CP) Google AdWords (2011) (CP)	Use SPSS to conduct complete descriptive analysis of e-score data  Get caught up on reading notes and understanding of concepts from class
<b>Week 7</b> 2/23	Analytical techniques	Provost & Fawcett, Chs 3 – 6	
<b>Week 8</b> 3/2	Midterm test	Pay special attention to readings from Tanner, Punch & Provost and Foster, as well as what we discussed and did in class	Guest speaker
<b>Week 9</b> 3/9	Lab #1		
<b>No Class</b> 3/16	<b>Spring Break</b>		
<b>Week 10</b> 3/23	Predictive analysis	eTots.com Customer Care case	Lab assignment 1 due
<b>Week 11</b> 3/30	Lab		
<b>Week 12</b> 4/6	Text and unstructured data	Provost & Fawcett, Chs 10-12	Lab assignment 2 due
<b>Week 13</b> 4/13	Lab		
<b>Week 14</b> 4/20	Model and pattern identification in big data	Tanner (2014): Ch 7 & 8 Provost & Fawcett, Ch 7-9	Lab assignment 3 due
<b>Week 15</b> 4/27	EXTENDED CLASS SESSION 4-8 PM		Final project presentations

### Statement on Academic Conduct and Support Systems

#### Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional

information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.

### **Support Systems**

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. The Office of Disability Services and Programs [http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, USC Emergency Information <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.