USC Marshall
School of Business

DSO 510: Business Analytics (Fall 2021)

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Course Website: blackboard.usc.edu

Course Description

Business analytics is the process of utilizing tools and techniques to turn data into meaningful business insights. This course provides students with foundational knowledge for business analytics, including strategies, methods, and tools. Students will obtain the necessary skills for defining business analytics for data-driven decision making and innovation as well as hands-on experience using analytics to solve real-world problems. While this course exposes students to a variety of analytics tools, the focal objective is to provide a managerial perspective on the usage and role of business analytics in progressive corporations.

This course incorporates various tools, including Python, API's, Tableau, and Gephi. It is comprised of four modules, where each module provides students with an opportunity to obtain hands on experience regarding a technical aspect of the business analytics process. These modules are 1) Defining Business Problems and Obtaining and Organizing Data 2) Descriptive Analytics and Visualization 3) Predictive Analytics 4) Prescriptive Analytics. Each module also incorporates case studies and articles that address the impact of business analytics on specific domains. Therefore, while gradually accumulating the technical skills required to analytically examine business problems, students also obtain a managerial perspective on the importance of analytics across various domains. Importantly, this course is focused on the process of translating data analytics into meaningful business insights and outcomes.

Here is an overview of the technical skills students will acquire during this course:

- Hands on experience obtaining and organizing data from various sources, including API's.
- Managing and querying data.
- Present meaningful representations/visualizations of the data including graphs, plots, and geographic/spatial distributions to obtain insights.
- Conduct network analysis on social network data from Twitter.
- Analyze and interpret the results of regression analysis, text mining analysis, clustering, and other advanced statistical methodologies.
- Utilize cloud based artificial intelligence platforms (i.e., Microsoft Azure) and interpret and present the results.
- Obtain an understanding of the fundamental differences between prescriptive and predictive analytics and their role in driving business decisions.

Required Readings and Supplementary Materials

1. **Journal Articles:** Available for free through the USC libraries. (http://libguides.usc.edu/go.php?c=9231877).

2. **Business Cases:** Instructions for downloading business cases will be provided.

Course Notes

This class is organized into 7 sessions, where each session consists of a week of class. Students are required to prepare for each session by reading the cases and/or articles assigned for that week prior to attending the class. Please come to class prepared to actively participate in in-class problem solving and discuss the readings. The primary reading assignments are mentioned in the course schedule. Other reading assignments, if any, will be posted on the course website, and/or distributed in class.

It is recommended that students bring laptops to the lecture as we will be going through many detailed tutorials in class. While this is not required, students may benefit from following the tutorials in class on their personal computers and asking questions as needed. Detailed tutorials will be provided prior to each class where they will be used. If they prefer, students may replicate the tutorials outside of class.

The main communication channel for the course will be through Blackboard and emails. Periodic announcements will be sent through Blackboard, so please make sure to check for these. We will also use Slack for communication. Questions about assignment, projects, homework etc. can be asked on Slack and classmates with similar concerns will be able to observe the exchanges. We will also use Slack to assist in group formation and topic

selection for the Analytics Trends Presentation, which will be discussed in more detail in class.

Each student's grade will be comprised of homework, participation, a group project, and a final exam. See below for more details regarding the grade breakdown as well as further information about each course requirement.

Grading Breakdown

Assignment	**% of Grade**
Homework	50
Participation	10
Project	20
Final Exam	20
TOTAL	100

A. Homework

There will be a number of individual homework assigned throughout the semester. Each homework will be assigned to reinforce concepts, techniques, and methods covered in class.

B. Class Participation

Class sessions will provide useful information – both for learning the topics covered in the course and for working on the project. We do not have a textbook and are dealing with versatile topics. Hence, attendance is vital! Moreover, student participation in class discussions is crucial because it introduces alternative viewpoints and helps clarify concepts for the class as a whole. Participation grades will be based on the quality of a student's contribution to the lectures. Students are expected to read the cases in depth and be prepared to discuss the readings in class. The final participation grade will be determined solely at the discretion of the instructor.

C. Group Project

There is one team project. Detailed explanations of the project will be posted on the class website. You will be assigned to a group of three to five students to work together on a real-world problem, with the approval of the instructor. Students are expected to substantially contribute to the completion of the team project in this

course. The project gives students an opportunity to creatively think how data analytics can be applied to a real business problem.

Assignment Submission Policy

All content submission will be submitted through Blackboard. Late submissions will be penalized by 25%. Remember late is late, whether it is 1 minute or one hour, so please be sure to submit in advance of deadlines. A maximum of 24 hours will be allowed for late submissions (as mentioned, these will be penalized by 25%) after which the submission window will close and the submitter(s) will receive a 0.

Course Schedule: A Weekly Breakdown

* Class schedule may be modified during the semester. Please check the class website and emails before every class for announcements, assignments, and schedule changes

	Daily Activities	Readings and Homework	Deliverable/ Due Dates
Week 1: 10/18/2021	Introduction	Articles: • Big Data: The Management Revolution. **Harvard Business Review.**	
Week 2: 10/25/2021	Data Collection and Organization	Article: • The Path to Prescription: Closing the Gap Between the Promise and the Reality of Big Data. **Rotman Management Magazine.** • 3 Common Mistakes that can Derail Your Team's Predictive Analytics Efforts. **Harvard Business Review.** Case: • Predicting Consumer Tastes with Big Data at Gap.	
Week 3: 11/1/2021	Descriptive Analytics and Visualization	Article: • Data Analytics from Bias to Better Decisions. **Rotman Management Magazine.** • Integrating Analytics in Your Organization: Lessons from the Sports Industry. **MIT Sloan Management Review.** Case: • UCB: Data is the New Drug.	**HW 1**
Week 4: 11/08/2021	Regression Analysis	Article: • 4 Analytics Concepts Every Manager Should Understand. **Harvard Business Review Digital Articles** Case: • Trust the Algorithm or Your Gut?	
Week 5: 11/15/2021	Network Analysis	Article: • Better People Analytics. **Harvard Business Review.**	**HW 2**
Week 6: 11/22/2021	Text Mining (NLTK)	Article: • Your Biggest Social Media Fan Might Not Be Your Best Customer. **Harvard Business Review Digital Articles.**	**HW 3**
Week 7: 11/29/2021	Prescriptive Analytics	Case: • Booking.com	**HW 4 / Final Project Submission**

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 Part B, Section 11, "Behavior Violating University Standards" https://policy.usc.edu/scampus-part-b/. 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.

Support Systems:
Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. https://engemannshc.usc.edu/counseling/

National Suicide Prevention Lifeline - 1-800-273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. https://equity.usc.edu/

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/

The Office of Disability Services and Programs
Provides certification for students with disabilities and helps arrange relevant accommodations. http://dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. https://studentaffairs.usc.edu/ssa/

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. https://diversity.usc.edu/

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, http://emergency.usc.edu

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.
Provides overall safety to USC community. http://dps.usc.edu