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|  | **Getting the Organization Ready for Big Data** |
| **Spring 2017**  **Section #1) Monday, Wednesday: 3:30 - 4:50 pm**  **Section #2) Wednesday: 6:30 - 9:30 pm** |
| **Professor: Milan Miric** |
| **Office: BRI-306C** |
| **Office Hours:**  After class or by appointment. |
| **E-mail:** [mmiric@marshall.usc.edu](mailto:mmiric@marshall.usc.edu) |

***Syllabus is tenatative and subject to change depending on when guest***

***speakers are able to attend.***

***Please contact professor if you have any questions about the course.***

**Course Description**

This course focuses on the growing phenomenon of “Big Data” and how firms can prepare themselves to benefit from this phenomenon. Companies now have the ability to collect and analyze far more information than every before. This phenomenon, often referred to as ‘Big Data’, has allowed firms to improve their marketing, innovation, manufacturing and distribution activities. There are numerous well-known examples of companies such as Google, Proctor & Gamble and GE that have implemented ‘big data’ initiatives successfully and reaped the benefits. Despite these success stories, there are other examples of companies such as Tesco or Havas or that stumbled and faltered when attempting to implement ‘big data’ initiatives.

This course aims to provide students with an understanding of what companies need to do to prepare themselves for a world of big data and analytics. This course also ***aims to prepare students with the skills and understanding that they need to flourish in a data driven company.***

This course will look at how data is influenceing a number of different industries. Howver, there will be a special focus on the entertainment industry with several guest speakers from television and movie studios.

The final project of this course will focus on the impact of social media analytics in collaboration with Twitter and Sony Pictures Entertainment. The project will involve a real world task and data from Sony and Twitter, as well as a final presentation in front of executives from these companies.

This course uses a combination of lectures, case studies, workshops and industry guest speakers.

By the end of the course, students should be able to:

1. Analyze the strategic tradeoffs surrounding the use of business analytics and big data.
2. Understand the challenges of implementing big data and business analytics.
3. Present data driven insights and findings to executives.
4. Use python to explore data and perform a variety of big-data tasks.

**Required Course Materials**

1. **Journal Articles.** The assigned readings will consist of journal articles published in outlets such as Harvard Business Review. It is possible to access electronic copies of these articles for free through the USC libraries. The library provides access to Harvard Business Review through EBSCO Business Source Complete which you can access using the following link (<http://libguides.usc.edu/go.php?c=9231877> ).
2. **Business Cases.** A number of the sessions in this course require students to prepare by reading business cases. These cases can be downloaded directly from the Harvard Business Press website using the following link (<http://cb.hbsp.harvard.edu/cbmp/access/57621776> )

**Course Notes:**

Lecture notes and slides will be posted online on blackboard in advance of the lectures. Specific details for each assignment will be posted on Blackboard well in advance of the due date.

**Grading Policies:**

An individual student’s grades will be calculated based on the following components. It is important to note that exceptional work or effort by a student will be recognized and rewarded. Similarly, plagiarism in written assignments will be penalized according to USC rules and guidelines.

1. Class Participation 25%
2. Case / Workshop Write-ups 30% (10% each)
3. Final Assignment
   1. Check In #1 5%
   2. Check In #2 10%
   3. Final Report and Presentation 30%
4. **Class Participation.** Students are expected to participate in the lectures, an especially when discussing case studies. Participation grades will be based on the quality of a student’s contribution to the lectures. Participation will be graded by the professor in each class.

Students which are passionate, curious and willing to engage in class debate will receive higher participation grades. More importantly, this will create more exciting and engaging learning experience.

To get a high participation mark, students MUST read the assigned material before class and especially the cases when they are assigned. Students must read the cases in depth and prepare to discuss the assigned case before each class.

**Laptops & Mobile Devices.** As a professional courtesy it is expected that students devote their full attention to the class. Laptops, mobile phones or tablets are allowed to be used to look up assigned reading material or for taking notes. These devices are not allowed to be used for email, instant messaging, Facebook or completing assignments while lectures are in session. Failure to follow these rules will affect a student’s participation grade.

1. **Case / Workshop Write-ups.** The class will involve a number of case discussions and programing workshops in python. Students will be expected to submit a writeup of at least one of the cases and to provide the output of at least one of the programing workshops.

Detailed information about what is expected for each deliverable will be posted on Blackboard at the beginning of the course.

1. **Major Project.** Throughout the duration of the course students will work on a “real world” project in collaboration with Sony Pictures Entertainment (SPE) and Twitter. During the first week of classes, executives from SPE and Twitter will come to class to introduce the project and provide background for the case. Students will receive data from Sony and Twitter and be expected to analyse the data and generate insights for the companies.

Students will work on the project until the final week of the course when they will be expected to submit a final report (10 to 15 pages in length) and give a 10 minute presentation to the class summarizing the findings of the report. Students will be expected to submit a proposal, a rough draft as well as their final report.

The details of the project are described on blackboard.

**Overview of Course Lectures & Assigned Readings**

The course will last fifteen sessions. There are assigned readings for each session that students are expected to read before coming to class.

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| **Session #1: Course Introduction and Overview** |
| Readings:   * + How big data is different**. *MIT Sloan Management Review.***   + Big data. *The management revolution.* ***Harvard Business Review.***   + Legendary Entertainment: Moneyball for Motion Pictures. ***Harvard Business Publishing Case.***   In-class Case:  **Sony Pictures Entertainment & Twitter (Project Introduction)** |
| **Session #2: Digital Ubiquity and the Growth of Big Data** |
| In-class Case:  **Duetto: Industry Transformation with Big data.**  Pre-class Readings:   * The Thermostat Industry: Transformation from Analog to Digital. ***Harvard Business Review Technical Note.*** * ***Optional Reading:*** The Digitization of Just About Everything.***Book Chapter*** |
| **Session #3: Profiting from Big Data** |
| In-class Case:  **Podium Data: Harnessing the Power of Big Data Analytics.**  Pre-class Readings:   * Inventory Management in The Age of Big Data. **Harvard Business Review.** |
| **Session #4: Growth of Big Data and The Internet of Things (1)** |
| In-class Case:  **GE and the Industrial Internet.**  Pre-class Readings:   * Digital Ubiquity: How Connections, Sensors and Data are Revolutionizing Business. **Harvard Business Review.** |
| **Session #5:** **Growth of Big Data and The Internet of Things (2)** |
| In-class Case:  **Google Car.**  Pre-class Readings:   * How Smart, Connected Products Are Transforming Competition. **Harvard Business Review.** |
| **Session #6: Big Data in Professional Sports** |
| In-class Case:  **TSG Hoffenheim: Football in the Age of Analytics.**  Pre-class Readings:   * Success Comes From Better Data, Not Better Analysis. **Harvard Business Review.** |
| **Session #7: Big Data and Talent Management** |
| In-class Case:  **Big Data and Talent Management: Using Hard Data to Make the Soft Stuff Easy.**  Pre-class Readings:   * Big Data, Big Talent: New Human Capital Management Tools. **Harvard Business Review.** * Competing on Talent Analytics. **Harvard Business Review.** |
| **Session #8: Strategic Tradeoffs in Transitioning to Big Data** |
| In-class Case:  **The Weather Company: Creating Consumer Apps That Leverage It’s Big Data.**  Pre-class Readings:   * Advertising Analytics 2.0. **Harvard Business Review.** * Analytics 3.0. **Harvard Business Review.** |
| **Session #9: Challenges of Implementing Big Data Initiatives (1)** |
| In-class Case:  **Havas: Change Faster.**  Pre-class Readings:   * Beware Big Data’s Easy Answers. **Harvard Business Review.** * Google Flu Trends’ Failure Shows Good Data > Big Data. **Harvard Business Review.** |
| **Session #10: Challenges of Implementing Big Data Initiatives (2)** |
| In-class Case:  **Troubles at Tesco.**  Pre-class Readings:   * Don't Let Big Data Bury Your Brand. **Harvard Business Review.** |
| **Session #11: Sustaining Competitive Advantage through Big Data** |
| In-class Case:  **Harah’s Entertainment Inc.**  Pre-class Readings:   * GE and the Culture of Analytics. **MIT Sloan Management Review.** |
| **Session #12: Distinguishing between Signal and Noise** |
| In-class Case:  **Team New Zealand.**  Pre-class Readings:   * Running Field Experiments to Make Sense of Your Big Data. **Harvard Business Review.** * Diamonds from the Diamond Mine. **Harvard Business Review.** * From Correlation to Causation. **Harvard Business Review.** * The Discipline of Business Experimentation. **Harvard Business Review.** |
| **Session #13: Generating Actionable Insights from Big Data** |
| In-class Case:  **Making analytics actionable at AllDrinksSoft.**  Pre-class Readings:   * Using Simulated Experience to Make Sense of Big Data. **MIT Sloan Management Review.** * Making Big Data Actionable: How Data Visualization and Other Tools Change the Game. **Harvard Business Review.** |
| **Session #14: Presenting Insights from Data** |
| * In Class Workshop |
| **Session #15: Value of Data & Student Presentations** |
| *Group presentations will be held at the end of class.*  In-class Case:  **Volkswagen Group: Driving Big Business With Big Data.**  Pre-class Readings:  *No readings assigned for this week.*  Assignments Due:   * **Group Presentations** * **Final Assignments** |

A full list of reference for all articles and cases used in the course is listed at the end of the document.

**Academic Integrity and Conduct**

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own (plagiarism). 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.  All students are expected to understand and abide by the principles discussed in the *SCampus*, the Student Guidebook ([www.usc.edu/scampus](http://www.usc.edu/scampus) or <http://scampus.usc.edu>). A discussion of plagiarism appears in the University Student Conduct Code (section 11.00 and Appendix A).

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/> . Failure to adhere to the academic conduct standards set forth by these guidelines and our programs will not be tolerated by the USC Marshall community and can lead to dismissal.

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 of the 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://engemannshc.usc.edu/cwm/*](http://engemannshc.usc.edu/cwm/)provides 24/7 confidential support, and the sexual assault resource center webpage <https://sarc.usc.edu/reporting-options/> describes reporting options and other resources.

## **Support Systems**

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* ([www.usc.edu/disability](http://www.usc.edu/disability))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.

**Students with Disabilities**

The Office of Disability Services and Programs ([www.usc.edu/disability](http://www.usc.edu/disability)) provides certification for students with disabilities and helps arrange the relevant accommodations.  Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to your TA) as early in the semester as possible. DSP is located in GFS (Grace Ford Salvatori Hall) 120 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776. Email: ability@usc.edu.

**Emergency Preparedness/Course Continuity**

In case of a declared emergency if travel to campus is not feasible, the *USC Emergency Information* web site ([*http://emergency.usc.edu/*](http://emergency.usc.edu/)*)* will provide safety and other information, including electronic means by which instructors will conduct class using a combination of Blackboard, teleconferencing, and other technologies.

Please make sure you can access this course in Blackboard and retrieve the course syllabus and other course materials electronically. You should check Blackboard regularly for announcements and new materials. In the event of an emergency, the ability to access Blackboard will be crucial. USC's Blackboard learning management system and support information is available at [blackboard.usc.edu](http://blackboard.usc.edu/).

**Assigned Readings (in Alphabetical Order):**

Bean, R. (2016). Just Using Big Data Isn’t Enough Anymore. *Harvard Business Review*, 1–4.

Brynjolfsson, E., & McAfee, A. (2012). Big Data: The Management Revolution. *Harvard Business Review*, (October), 61–67.

Brynjolfsson, E., & McAfee, A. (2014). The Digitization of Just About Everything. In *The Second Machine Age* (pp. 57–70). New York: W.W. Norton & Company.

Chamorro-Premuzic, T. (2015). Big Data, Big Talent: New Human Capital Management Tools. Retrieved from https://hbr.org/webinar/2015/10/big-data-big-talent-new-human-capital-management-tools

Cohen, M. A. (2015). Inventory Management in the Age of Big Data. *Harvard Business Review*, (Digital Article), 1–5.

Davenport, T. H. (2013). Analytics 3.0. *Harvard Business Review*, (December), 65–71.

Davenport, T. H., Barth, P., & Bean, R. (2012). How “Big Data” is Different. *MIT Sloan Management Review*, *54*(1), 22–24.

Davenport, T. H., Harris, J., & Shapiro, J. (2010). Competing on Talent Analytics. *Harvard Business Review*, (October), 52–58.

Fung, K. (2014). Google Flu Trends’ Failure Shows Good Data > Big Data. *Harvard Business Review*, (Digital Article), 1–4.

Harvard Business Review Webinar. (2014). Making Big Data Actionable: How Data Visualization and Other Tools Change the Game.

Hogarth, R. M., & Soyer, E. (2015). Using Simulated Experience to Make Sense of Big Data. *MIT Sloan Management Review*, *56*(2), 49–54.

Horst, P., & Duboff, R. (2015). Don’t Let Big Data Buy Your Brand. *Harvard Business Review*, (November), 79–86.

Iansiti, M., & Lakhani, K. R. (2014). Digital Ubiquity: How Connections, Sensors, and Data Are Revolutionizing Business. *Harvard Business Review*, (November), 91–99.

Kim, P. (2014). GE and the Culture of Analytics. *MIT Sloan Management Review*, (Digital Article), 1–6.

Lakhani, K. R., Herman, K., & Snively, C. (2014). The Thermostat Industry: Transformation from Analog to Digital. *Harvard Business School Technical Note 615-038*, (December), 1–13.

Loveman, G. (2003). Diamonds from the Data Mine. *Harvard Business Review*, (May), 109–113.

Merrill, D. (2014). Beware Big Data’s Easy Answers. *Harvard Business Review*, (Digital Article), 1–3.

Morey, D. (2011). Success Comes From Better Data, Not Better Analysis. *Harvard Business Review*, (Digital Article), 1–3.

Nichols, W. (2013). Advertizing Analytics 2.0. *Harvard Business Review*, (March), 60–68.

Porter, M. E., & Heppelmann, J. E. (2014). How Smart, Connected Products Are Transforming Competition. *Harvard Business Review*, *90*(11), 64–88.

Redman, T. C. (2013). Data’ s Credibility Problem. *Harvard Business Review*, (December), 84–88.

Thomke, S., & Manzi, J. (2014). The Discipline of Business Experimentation. *Harvard Business Review*, (December), 70–79.

Wessel, M. (2016). How Big Data Is Changing Disruptive Innovation. *Harvard Business Review*, (Digital Article), 1–6.

Zhu, F., & Lakhani, K. R. (2015). From Correlation to Causation. *Harvard Business School Technical Note 616-009*, (August), 1–7.

Zoumpoulis, S., Simester, D., & Evgeniou, T. (2015). Run Field Experiments to Make Sense of Your Big Data. *Harvard Business Review*, (Digital Article), 1–3.

**Assigned Cases (in Chronological Order):**

Applegate, Lynda M., Gabriele Piccoli, and Federico Pigni. "Duetto: Industry Transformation with Big Data." Harvard Business School Case 816-028, August 2015.

Applegate, Lynda M., Karim R. Lakhani, and Nicole Bucala. "Podium Data: Harnessing the Power of Big Data Analytics." Harvard Business School Case 816-007, July 2015.

Lakhani, Karim R., Marco Iansiti, and Kerry Herman. "GE and the Industrial Internet." Harvard Business School Case 614-032, April 2014.

Lakhani, Karim R., James Weber, and Christine Snively. "Google Car." Harvard Business School Case 614-022, January 2014.

Zhu, Feng, Karim R. Lakhani, Sascha L. Schmidt, and Kerry Herman. "TSG Hoffenheim: Football in the Age of Analytics." Harvard Business School Case 616-010, August 2015.

Kanter, Rosabeth Moss. "The Weather Company." Harvard Business School Case 314-083, January 2014.

Russell, Chuck, Bennett, Nathan. “Big Data and Talent Management: Using Hard Data to Make the Soft Stuff Easy.” Business Horizons Case. May 2015.

Gilleran, Ruth, Guinan, Patricia J., Parise, Salvatore. “The Weather Company: Creating Consumer Apps That Leverage It’s Big Data.” Babson College Case, November 2015.

Lakhani, Karim R., and Michael L. Tushman. "Havas: Change Faster." Harvard Business School Multimedia/Video Case 615-702, September 2014.

Wells, John R., and Galen Danskin. "Troubles at Tesco, 2012." Harvard Business School Case 713-452, October 2012.

Lal, Rajiv, and Patricia Carrolo. "Harrah's Entertainment Inc." Harvard Business School Case 502-011, October 2001.

Iansiti, Marco, and Alan D. MacCormack. "Team New Zealand (A)." Harvard Business School Case 697-040, October 1996.

Su, Ning, Pirani, Naqaash. “Volkswagen Group: Driving Big Business With Big Data.” Ivey Publishing Case, February 2014.