ISQS 5341
Big Data Strategy
Fall 2020

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Course Description

This course concerns strategies for applying the concepts and outputs of big data technologies, analytics, and data science generally to business and managerial contexts. Using the outputs of big data to monetize opportunities and to create sustainable strategic competitive advantage is increasingly critical to business. Communicating to executives and managers the concepts and opportunities afforded by big data, as well as the limitations, is a challenging but equally important process. The focus of this course is on the behavioral aspects of big data. The goal is to provide students with the ability to apply knowledge to solve critical business challenges concerning big data and to create opportunities to improve organizations in an ethical manner.

Learning Objectives

Following completion of the course, students should be able to:

1. Identify the characteristics of big data and explain how humans can create, utilize, and monetize them for innovative competitive advantage.
2. Discuss ethical considerations in big data use and data privacy.
3. Demonstrate how to develop and implement a big data strategy.
4. Critically analyze unique problems in big data strategy.

Required Materials

Big Data @ Work: Dispelling the Myths, Uncovering the Opportunities, by Thomas H. Davenport. Harvard Business Review Press, 2014.

From Big Data to Big Profits: Success with Data and Analytics, by Russell Walker. Oxford University Press, 2015.

Harvard Case Service (HCS) Readings. Available for purchase online at the class website at https://hbsp.harvard.edu/import/762723. Please use this webpage to receive the discounted price for the materials.

Additional Readings listed at the end of the syllabus. Some additional readings are available to you as a Texas Tech student once you are signed in. From home or work that means that you may need to sign in using a VPN. At that point the URLs listed should work for you. The remaining additional readings are from the Harvard Case Service and must be purchased. Please note that the Harvard readings are subject to copyright laws and may not be shared among students.

ISQS 5341 Discussion Notes, available on the Blackboard course website.

ISQS 5341 Article Discussion Notes, available on the Blackboard course website.

ISQS 5341 Case Discussion Notes, available on the Blackboard course website.

Course Grading

Two Exams   80% (40%, 40%)
Discussion Assignment   20%
                           100%

It is important to recognize that grading necessarily reflects the instructor's judgment regarding the quality of your work. In this sense, all grading is subjective, and different graders would undoubtedly grade work a bit differently. If you have a question about a score, please feel free to discuss it with me. However, requests for re-grading will be met with skepticism unless an obvious grading mistake is present. When requests for additional points on exam answers are requested, I usually will re-grade the entire exam, which may result in a lower or higher overall score.

Final grades may conform to the following guidelines, but will be curved at the discretion of the instructor.

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

Discussion Notes

The Discussion Notes provided are an outline of the slides for the course. They are provided for your benefit to reduce the number of notes you will need to take during the lectures. Students are encouraged to take notes during the lectures on the outline provided, as note-taking enhances learning and memorability of the material presented.

Exams

There will be two exams during the course. The exams are closed book, closed notes, and closed to every other source except your brain. There is no final examination for the course. Students will have a window of several days to take each of the exams.

Please note that the only valid excuse for missing a exam is an unforeseen medical emergency. A doctor's note is always required. All other excuses will be rejected and the student will earn a score of "0" for the exam.

Please note that students' responses on exams are submitted to iThenticate. As noted below, iThenticate identifies material that has been copied from other sources. In addition, since the professor grades all answers, he is able to identify answers that are copied from other students' answers or from the course slides. It is both an ethical obligation and simply smart to answer examination questions yourself.

Articles and Cases

Most topics have one or more popular press articles associated with them and some have a case. The articles and cases are listed on the schedule for the course. The articles are generally short and the cases (of which one is a long article) are much longer and provide more depth on a topic. My expectation is that students will spend more time thinking about the cases. I have supplied discussion questions for each article and case. Students are encouraged to complete the discussion questions, as they will be helpful in studying for the exams.

Discussion Assignment

There will be one discussion assignment during the term. The discussion will be between the students, not the professor and the students. The goal of the discussion should be to reach consensus on the issue presented (which will be described on Blackboard). Grading will be based on the level of contribution and collaboration by each student. For example, were the thoughts or ideas generated by a student useful in forwarding the discussion? The consensus conclusion reached by the class will not be graded.

The following rules for general civility must always be observed. No swearing, no slurs against individuals or groups of people, no ranting, etc. Stick to the data, provide well-reasoned and thoughtful arguments, and treat people as you would like to be treated.

Professor Response Timing

You may always email me with questions. I will endeavor to respond within 24 hours for inquiries made on Sundays-Thursdays, and within 72 hours for inquiries made on Fridays or Saturdays. You will typically hear from me sooner, but there may also be occasions when I am unable to respond within the guidelines due to unforeseeable circumstances.

Students with Disabilities

Any student who requires special arrangements because of a disability should contact the professor at the beginning of the term and present appropriate documentation of the disability from the AccessTECH office. Accommodations will be made for such students.

Academic Integrity

Academic Integrity is defined under Texas Tech Operating Policy 34.12, and students are referred to that policy for complete details. The policy states:

"Academic misconduct includes cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, violations of published professional ethics/standards, and any act or attempted act designed to give unfair academic advantage to oneself or another student. Additional information about academic misconduct is available in the Texas Tech University Handbook in Part II, section B of the Community Policies section in the Student Handbook at http://www.depts.ttu.edu/dos/handbook/.

a. Cheating

1.   Copying from another student's academic work, test, quiz, or other assignment
2.   Receiving assistance from and/or seeking aid from another student or individual to complete academic work, test, quiz, or other assignment without authority.
3.   The use or possession of materials or devices during academic work, test, quiz or other assignment which are not authorized by the person administering the academic work, test, quiz, or other assignment.
4.   Possessing, using, buying, stealing, transporting, selling, or soliciting in whole or in part items including, but not limited to, the contents of an unadministered test, test key, homework solution, or computer program/ software. Possession, at any time, of current or previous course materials without the instructor's permission.
5.   Obtaining by any means, or coercing another person to obtain items including, but not limited to, an unadministered test, test key, homework solution, or computer program/software, or information about an unadministered test, test key, homework solution, or computer program.
6.   Transmitting or receiving information about the contents of academic work, test, quiz, or other assignment with another individual who has completed or will complete the academic work, test, quiz, or other assignment without authority.
7.   Substituting for another person, or permitting another person to substitute for oneself, in order to take a course, take a test, quiz, or other assignment or sign in/register attendance.
8.   Taking, keeping, misplacing, damaging, or altering the property of the University or of another if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct.
9.   Falsifying research data, laboratory reports, and/or other academic work offered for credit.

10.   Failing to comply with instructions given by the person administering the academic work, test, quiz, or other assignment.

b. Plagiarism

1.   The representation of words, ideas, illustrations, structure, computer code, other expression, or media of another as one's own and/or failing to properly cite direct, paraphrased, or summarized materials.
2.   Self-plagiarism, which involves the submission of the same academic work more than once without the prior permission of the instructor and/or failure to correctly cite previous work written by the same student.

c. Collusion

The unauthorized collaboration with another individual to complete academic work, test, quiz, or other assignment, providing unauthorized assistance to another student, allowing another student access to completed academic work, and/or conspiring with another person to commit a violation of academic dishonesty.

d. Falsifying academic records

1.   Altering or assisting in the altering of any official record of the University and/or submitting false information.
2.   Omitting requested information that is required for, or related to, any official record of the University.

e. Misrepresenting facts

1.   Providing false grades, falsifying information on a resume, or falsifying other academic information.
2.   Providing false or misleading information in an effort to injure another student academically or financially.
3.   Providing false or misleading information or official documentation in an effort to receive a postponement or an extension on academic work, test, quiz, other assignment, credit for attendance, and/or obtain an academic or financial benefit for oneself or another individual."

Each student is subject to Texas Tech OP 34.12. Plagiarism, cheating, etc. include any misrepresentation of your work. You are expected to provide your own responses from your own brain for all class assignments. If you copy answers to exams or material for the class Discussion assignment from the internet or another student or an article or the course slides or a textbook and misrepresent it as your own, that is both cheating and plagiarism. On exams, you are not permitted to use any source except your brain. For the Discussion assignment, you are permitted to use others' material sparingly as long as you provide appropriate citations. All answers from all students on written work are submitted to iThenticate. iThenticate identifies about 99% of plagiarized and copied material. The penalty for plagiarism and/or cheating in this course is a score of "0" on the exam or assignment. It is critical in this class and in life to do your own work.

Please note that academic misconduct is a serious offense and will be handled by the appropriate authorities in the department, the college, and the university. The Office of Student Conduct handles all cases of academic misconduct at Texas Tech University.

Religious Holy Day Statement

"Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused under section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

ISQS 5341
Class Schedule

Date	Topic	Readings
Week of 10/13/20	Introduction Importance of Big Data	BDW Ch. 1 BDBP Ch. 1 "What Data Scientists Do"
Week of 10/19/20	Strategic Characteristics of Big Data and Developing a Big Data Strategy	BDBP Ch. 2 BDW Ch. 2 BDW Ch. 3 "H&M Pivots to Big Data" "Grocers Imagine" "Managing with Analytics"
	Data Capture and Measurement	BDBP Ch. 3-5 "You Don't Need Big Data" "Why Hospitals Need" "Streaming TV is Surging"
Week of 10/26/20	Data Fusion/Integration	BDBP Ch. 6 "Why Your Next Real Estate" "Modak Analytics"
	Monetizing Big Data	BDBP Ch. 7-8 "How eBay Uses Big Data" "LinkedIn Connects"
Week of 11/2/20	**Exam #1 (Fri., Sat., or Sun. - Nov. 6-8)**	
Week of 11/9/20	Human Side of Big Data	BDW Ch. 4 BDBP Ch. 9 "AI Isn't Magical" "Big Data and Machine Learning"
	Big Data and Innovation	BDBP Ch. 10-11 "Downside of Baseball's" "The Big Data Behind" "Emirates Air" "Netflix: The Disruptor"

Week of 11/16/20	Privacy in Big Data	BDBP Ch. 12
		"Your Health Data"
		"Why Free is Too High"
	Ethics in Big Data	"Banks and Retailers are Tracking"
		"Banks Get Personal"
		"Facebook's Hard Fall"
		"When Tech Knows You"
	Succeeding with Big Data	BDW Ch. 6
		BDBP Ch. 13
		"For a Flavor Boost"
		"Managing Our Hub"

Discussion Assignment - Opens 11/16/20 12:00 a.m. CST

Week of 11/23/20	**Discussion Assignment (cont.) – Closes 11/25/20 at 11:59 p.m. CST**	
	Implementing a Big Data Strategy	BDW Ch. 7-8
		BDBP Ch. 14
		"Rise of the Smart City"
		"Digital Ubiquity"

Week of 11/29/20   **Exam #2 (Sun., Mon., or Tues. - Nov. 29-Dec. 1)**

Additional Readings (available at the URLs listed or in the HCS packet)

Please note that some of these articles appear as text-only in the permalinks listed below. In most cases, you may be able to view the article in its entirety with pictures and sidebars either by simply typing the title into a search engine or by signing in to your *Wall Street Journal* account through the Rawls College website.

1. "What Data Scientists Do All Day at Work," by Deborah Gage. *The Wall Street Journal*, March 13, 2016. https://www.wsj.com/articles/what-data-scientists-do-all-day-at-work-1457921541
2. "H&M Pivots to Big Data to Spot Next Big Fast-Fashion Trends," by Saabira Chaudhuri. *The Wall Street Journal*, May 7, 2018. https://www.wsj.com/articles/h-m-pivots-to-big-data-to-spot-next-big-fast-fashion-trends-1525694400
3. "Grocers Imagine the Store of the Future," by Heather Haddon. *The Wall Street Journal,* October 15, 2017. https://www.wsj.com/articles/grocers-imagine-the-store-of-the-future-1508119682
4. "Managing with Analytics at Procter & Gamble." Harvard case #9-613-045. April 3, 2013. **HCS Packet**.
5. "You Don't Need Big Data—You Need the Right Data," by Maxwell Wessel. *Harvard Business Review*, November 3, 2016. https://hbr.org/2016/11/you-dont-need-big-data-you-need-the-right-data
6. "Why Hospitals Need Better Data Science," by Sanjeev Agrawal. *Harvard Business Review*, October 19, 2017. https://hbr.org/2017/10/why-hospitals-need-better-data-science
7. "Streaming TV is Surging, but the Ads Remain on Repeat," by Sahil Patel. *The Wall Street Journal*, September 23, 2020. https://www-proquest-com.lib-e2.lib.ttu.edu/docview/2444820080?accountid=7098

8. "Why Your Next Real Estate Deal Might Involve a Robot," by Katy McLaughlin. *The Wall Street Journal*, March 1, 2018. https://www.wsj.com/articles/why-your-next-real-estate-deal-might-involve-a-robot-1519908587

9. "Modak Analytics: Shaping the Future in Digital India." Case, Indian School of Business, January 31, 2017. **HCS Packet**.

10. "How eBay Uses Big Data and Machine Learning to Drive Business Value," by Maribel Lopez. *Forbes*, October 4, 2016. https://www.forbes.com/sites/maribellopez/2016/10/04/how-ebay-uses-big-data-and-machine-learning-to-drive-business-value/#43f130cf1f35

11. "LinkedIn Connects Big Data, Human Resources," by Sarah Halzack. *The Washington Post*, August 9, 2013. https://www.washingtonpost.com/business/at-linkedin-big-data-meets-human-resources/2013/08/09/7326ac44-f569-11e2-a2f1-a7acf9bd5d3a_story.html?utm_term=.4496987ac81b

12. "AI Isn't Magical and Won't Help You Reopen Your Business," by Christopher Mims. *The Wall Street Journal*, May 30, 2020.
https://www-proquest-com.lib-e2.lib.ttu.edu/docview/2407689001?accountid=7098

13. "Big Data and Machine Learning Won't Save Us From Another Financial Crisis," by Stephen Blyth. *Harvard Business Review*, September 18, 2018. https://hbr.org/2018/09/big-data-and-machine-learning-wont-save-us-from-another-financial-crisis

14. "The Downside of Baseball's Data Revolution—Long Games, Less Action," by Brian Costa and Jared Diamond. *The Wall Street Journal*, October 3, 2017. https://www.wsj.com/articles/the-downside-of-baseballs-data-revolutionlong-games-less-action-1507043924

15. "The Big Data Behind the NBA's Next Big Thing," by Ben Cohen. *The Wall Street Journal*, March 15, 2019. https://www-proquest-com.lib-e2.lib.ttu.edu/docview/2191333303?accountid=7098

16. "Emirates Air Aims to Sell More Than Flights," by Nicolas Parasie. *The Wall Street Journal*, May 18, 2018. https://www.wsj.com/articles/emirates-air-aims-to-sell-more-than-flights-1526868540

17. "Netflix, Inc.: The Disruptor Faces Disruption." Ivey Publishing #W17722. **HCS Packet**.

18. "Your Health Data Isn't as Safe as You Think," by Katherine Bindley. *The Wall Street Journal*, November 22, 2019. https://www-proquest-com.lib-e2.lib.ttu.edu/docview/2316736717?accountid=7098

19. "Why Free is Too High a Price for Facebook and Google," by Christopher Mims. *The Wall Street Journal*, June 8, 2019.
 https://www-proquest-com.lib-e2.lib.ttu.edu/docview/2236484113?accountid=7098

20. "Banks and Retailers are Tracking How You Type, Swipe, and Tap," by Stacy Cowley. *The New York Times*, August 13, 2018. https://www.nytimes.com/2018/08/13/business/behavioral-biometrics-banks-security.html

21. "Banks Get Personal in Their Marketing," by Christina Rexrode and Emily Glazer. *The Wall Street Journal*, April 24, 2017. https://www.wsj.com/articles/banks-get-personal-in-their-marketing-1493086141

22. "Facebook's Hard Fall Shows the Pitfalls of Big Data," by John D. Stoll. *The Wall Street Journal*, July 28, 2018. https://www.wsj.com/articles/facebooks-hard-fall-shows-the-pitfalls-of-big-data-1532750496

23. "When Tech Knows You Better Than You Know Yourself," by Nicholas Thompson. **Case**. *Wired*, October 4, 2018. https://www.wired.com/story/artificial-intelligence-yuval-noah-harari-tristan-harris/

24. "For a Flavor Boost, Chefs Turn to Big Data," by Bob Holmes. *The Wall Street Journal*, March 24, 2017. https://www.wsj.com/articles/for-a-flavor-boost-chefs-turn-to-big-data-1490369287

25. "Managing Our Hub Economy," by Marco Iansiti and Karim R. Lakhani. *Harvard Business Review*, September-October 2017. https://hbr.org/2017/09/managing-our-hub-economy

26. "The Rise of the Smart City," by Michael Totty. *The Wall Street Journal*, April 16, 2017. https://www.wsj.com/articles/the-rise-of-the-smart-city-1492395120

27. "Digital Ubiquity: How Connections, Sensors, and Data are Revolutionizing Business," by Marco Iansiti and Karim R. Lakhani. *Harvard Business Review*, November 2014. https://www.researchgate.net/publication/269764373_Digital_Ubiquity_How_Connections_Sensors_and_Data_Are_Revolutionizing_Business