

“Data Science Strategy & Leadership”

Course Code: DSB6000

Zoom Passcode: 151474

Class Schedule: Saturdays 9:00am-12pm , from 2/13/2021 to 5/1/2021

Semester/Year: Winter Term 2021

Faculty Contact Information

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Office hours: By online appointment

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Course Description

This course will teach students how organizations leverage data science and analytics to gain a competitive advantage and how to use data to achieve company goals. Students will learn how organizations organize data and use it to make decisions and improve ROI.

We will strive to gain a better understanding of how different organizations enact their data strategy and learn techniques a data analyst can use to organize, visualize, and present insights. Through better use of data, organizations can make decisions with greater clarity and confidence. Strong data strategy and execution provides a point of differentiation and competitive advantage. Organizations like Microsoft, IBM, Google, and Amazon are investing heavily in technologies and techniques to make better sense of, and unlock the value of big data. Furthermore, business analytics can help organizations successfully navigate rapidly changing business environments. Therefore, Business Analytics (BA) and Data Science is critical to organizational success and survival in an increasingly competitive world.

This course addresses the strategic management of enterprise analytics. It provides a broad perspective on the role and importance of analytics to business with a focus on pursuing “analytics that matter;” and insights that are designed to generate a sustainable competitive advantage. Topics covered and cases analyzed will address evaluating, strategically aligning, planning for and directing investments. The course reinforces the importance of creating an enterprise-level culture of fact-based decision making. We will discuss ethical issues surrounding customer data with a focus on consumer privacy. The course will also cover data and predictive modeling, enterprise-level support for experiment-based innovation, embedding analytics in business processes and enterprise performance management.

Course Objectives

1. Understand how organizations can use data to make better decisions
2. Understand the role of data science in organizational strategy and how organizations can leverage information to gain competitive advantage
3. Gain an introductory knowledge of data science tools and technologies and how to use them to extract insights and value from data sets
4. Learn the difference between “reports” and “insights” and how to present data to high level decision makers

5. Learn to create effective data visualization and to identify the most effective data visualization for each use case
6. Discuss the importance of big data in today's business environment and understand the ethical implications of increased data collection in the greater society

Instructional Method

Many of the topics in this course will be best understood through experiential learning. A case approach is used to emphasize hands-on learning and a real-world view of big data analytics. This course will be complemented by lectures, open discussion and outside speakers. Students will be introduced to ideas and tools for data analytics and visualization with a focus on data-driven decision making.

Some cases will involve the entire class discussing a situation while others will be team-based. Team groups for exercises and cases will be created in class. The exercise/case assignments will rotate for each project during the semester to give students multiple opportunities to work with as many other participants with different strengths and backgrounds as possible on the various cases.

Required Texts and Readings

- [4 HBS Case Studies Coursepack here](#) (\$17 total cost)
- O'Neil, Cathy. [Weapons of Math Destruction](#). (2016).
- Stephens-Davidowitz, Seth. [Everybody Lies](#). (2017).
- Wong, Dona. [The Wall Street Journal. Guide to Information Graphics](#). (2010).

Optional Texts and Readings

- Thomas H. Davenport, Jeanne G. Harris (2010) Analytics at Work: Smarter Decisions, Better Results Harvard Business Review Press
- The Wall Street Journal Guide to Information Graphics: The Dos and Don'ts of Presenting Data, Facts, and Figures by Dona M. Wong
- Storytelling with Data: A Data Visualization Guide for Business Professionals by Cole Nussbaumer Knaflic ([e-book link](#))
- Data Smart: Using Data Science to Transform Information into Insight [Paperback] John W. Foreman
- "Driven by Data: The Importance of Building a Culture of Fact-Based Decision-Making," SAS Publishing
- Noble, Safiya. *Algorithms of Oppression: How Search Engines Reinforce Racism*. (2018).
- Benjamin, Ruha. *Race After Technology: Abolitionists Tools for the New Jim Code* (2019).
- Eubanks, Virginia. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. (2019).
- Ferguson, Andrew Guthrie. *The Rise of Big Data Policing: Surveillance, Race, and the Future of Law Enforcement*. (2019).
- Perez, Caroline Criado. *Invisible Women: Data Bias in a World Designed for Men*. (2019).
- Wickham, Hadley. "Tidy Data." ([Link](#))

Weightage of Assignments:

| Assignment | Points | Weight |
|---|-----------|-------------|
| Student Led Discussion (Everybody Lies, Weapons of Math Destruction, or Wall Street Journal. Guide to Information Graphics) | 10 points | 10% |
| In-Class Participation (Minimum 1x a week) | 20 points | 20% |
| Group Case Presentation (Platform Startups-Launching Online Marketplaces) | 20 points | 20% |
| Detroit Data Mid Project Check-in Brief | 10 points | 10% |
| Final Project | 40 points | 40% |
| Total | | 100% |

Evaluation Criteria

| DSB6000 Grading Scale | | |
|----------------------------|-----|-------|
| Total Possible Points: 100 | | |
| From | To | Grade |
| 95 | 100 | A |
| 90 | 94 | A- |
| 87 | 89 | B+ |
| 83 | 86 | B |
| 80 | 82 | B- |
| 77 | 79 | C+ |
| 73 | 76 | C |
| 70 | 72 | C- |
| 67 | 69 | D+ |
| 63 | 66 | D |
| 60 | 62 | D- |
| 0 | 59 | F |

Late Submission:

- Late submission will be evaluated on a case-by-case basis and only granted under extreme circumstances.

Religious holidays (from the online Academic Calendar):

Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

Student Disabilities Services:

(Edited statement from the SDS web site): If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student's accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

Academic Dishonesty -- Plagiarism and Cheating (edited statement from the DOSO's web site):

Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (<http://www.doso.wayne.edu/student-conduct-services.html>). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

Cheating: Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise.

Examples include: (a) copying from another student's test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.

Fabrication: Intentional and unauthorized falsification of any information or citation.

Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.

Plagiarism: To take and use another's words or ideas as one's own. Examples include:

(a) failure to use appropriate referencing when using the words or ideas of other persons;

(b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.

Other forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student's access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

Course Drops and Withdrawals:

In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at: <http://reg.wayne.edu/pdf-policies/students.pdf>

Student Services:

The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit www.success.wayne.edu for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses). The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit <http://clasweb.clas.wayne.edu/writing> to obtain information on tutors, appointments, and the type of help they can provide.

Class recordings:

Students need prior written permission from the instructor before recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the student's personal instructional use. Such recordings are not intended for a wider public audience, such as postings to the internet or sharing with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor, who will subsequently comply with the request unless there is some specific reason why s/he cannot, such as discussion of confidential or protected information.