Course program and reading list

Semester 4 Year 2024

School: Arison School of Business MBA

Data Science Intuition

Lecturer:

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Tutors:

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Course No.:	Course Type :	Weekly Hours :	Credit:
25212	Lecture	2	2

Course Requirements :	Group Code :	Language:
Final Paper	1202241	Hebrew

Course Description

In the contemporary business landscape, managerial roles are perpetually inundated with data. Frequently likened to the 21st-century equivalent of oil, this deluge of data can often feel overwhelming, yet it harbors vast potential for creating business value. To effectively harness this potential, it's crucial for managers to grasp the capabilities of Data Science and understand how these can be seamlessly integrated into their overarching business strategies.

The principal aim of this course is to address the knowledge gap many managers confront when navigating the complexities of leveraging data technology. We aspire to impart a solid understanding of how the power of data can be harnessed to enrich product and service offerings, resolve business issues, and ultimately drive growth and innovation. This course will empower you with the tools and insights to transform data from a daunting challenge into a strategic asset.

Course Goals

The primary objective of this course is to arm managers with an instinctive grasp of Data Science principles and to elucidate how these can be leveraged to refine their business strategies.

Addressing a series of pivotal queries that managers frequently encounter, this course aims to provide comprehensive answers to questions such as:

1. As a manager, how can I enhance my confidence and expertise in handling data-centric tasks and actively participate in data-related discussions?
2. Beyond conventional spreadsheets, how can I expand my data perception to discover hidden patterns and insights?
3. With an intuitive understanding of Machine Learning, what tangible outcomes can be achieved to propel my business forward
4. How can I take the initiative to utilize my data resources effectively and extract invaluable business insights from them?
5. How can I evolve into a more proficient data consumer and effectively communicate data-driven insights to my stakeholders, regardless of their technical proficiency?
6. In what ways can I manage my organization's Data Science resources to inform and shape my business strategy in a data-driven world?

Grading

There is no exam in the course, but you are required to work hard during the semester to gain hands-on experience in
appreciating topics discussed in the lectures, practicing, and applying the learned techniques.
Some tasks are to be submitted individually, and some are to be done in your organic groups.

Homework (Individual work): 25% of your final grade: Throughout the course, you will have three tasks that complement the lecture material and allow you to practice, rehearse, and internalize the course topics. These assignments are meant for you to work at your own pace at home "hands-on" and obtain the learning outcomes before we discuss them in class. The grade for the homework assignments is a pass/fail grade.

Projects (group work): 50%of your final grade. You will prepare two group assignments to apply the principles learned in the course. You will work in the pre-assigned organic groups.

Zoom Defense (individual grade, conducted as a group): 25% of the final grade. Each group will schedule a Zoom meeting with the course staff in which they will "defend" their work. In this job interview-style knowledge assessment, each student will be asked questions on both group projects.

Detailed instructions to all assignments will be provided during the course.
The following table summarizes the publishing and submission times of the tasks in the course.

Lesson	Published Task	Due Task (start of lesson)
1	Homework 1	
2	Homework 2 Group Project 1	Homework 1
3	Homework 3	Homework 2
4	Group Project 2	Homework 3
5		Group Project 1
6		Group Project 2
after submitting group project 2		Zoom Defense (coordinated by each group)

Learning Outcomes

1. Transitioning from Traditional Business Statistics to Modern Data Science: This unit will introduce students to the evolving field of data science from its roots in business statistics. We will delve into the importance of data-driven decision making, the role of business statistics in today's business landscape, and how modern data science techniques build on and go beyond traditional statistical methods.
2. The Art of Becoming a Data Detective: This topic will instill in students a detective-like mindset when it comes to data. We'll cover how to formulate meaningful business questions, use exploratory data analysis to uncover patterns, anomalies, and relationships, and how to critically interpret findings to inform strategic decisions.
3. An Introduction to Machine Learning for Business Applications: This section introduces the foundational concepts of machine learning and its applications in business. We will cover various machine learning algorithms, their uses, and their implications for business strategy. Students will learn how to employ these techniques to predict future trends and make data-informed decisions.
4. Experimental Design: Generating Unique Data and Unveiling Business Insights: Here we delve into how to design experiments that yield high-quality, actionable data. The importance of factors like hypothesis formulation, control groups, and statistical significance will be discussed. We will also explore how these experiments can generate unique business insights, driving innovation and competitive advantage.
5. Data Storytelling: Transforming Numbers into Narratives: This topic focuses on the art

and science of data storytelling. Students will learn how to effectively communicate complex data insights to various stakeholders using storytelling techniques. We will discuss the importance of context, visualization, and narrative in making data accessible and meaningful to non-expert audiences.
6. Integration of Data Science and Business Strategy: This unit explores how data science can drive business strategy. We will discuss how predictive analytics, customer segmentation, and other data science techniques can inform strategic decisions. We'll also delve into real-world case studies that demonstrate the successful integration of data science in business strategy.
7. The AI Revolution and the Rise of GPT Technology: This part of the course will explore the ongoing AI revolution, focusing on the role of Generative Pretrained Transformers (GPT) in this landscape. We'll discuss the capabilities, potential applications, and implications of GPT technology for businesses, and how they can leverage this technology to gain a competitive edge.

Lecturer Office Hours

Upon need, by appointment, on Campus or Zoom
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Tutor Office Hours

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Reading List

1. C. Daniel Guetta (2019), "From Intuition to Data-Driven Analytics: The Case of Dig", Columbia CaseWorks
2. Tomas Chamorro-Premuzic (2020), "Are You Still Prioritizing Intuition Over Data?", Harvard Business Review
3. Thomas H. Davenport (2013), "Big Data and the Role of Intuition", Harvard Business Review
4. Hugo Bowne Anderson (2018), "Your Data Literacy Depends on Understanding the Types of Data and How They're Captured", Harvard Business Review
5. Sanjoy Mahajan and Carver A. Mead (2010), "Street-Fighting Mathematics: The Art of Educated Guessing and Opportunistic Problem Solving", The MIT Press
6. Brent Dykes (2019), "Effective Data Storytelling: How to Drive Change with Data, Narrative and Visuals 1st Edition", Wiley
7. Jay Leibowitz (2015), "Bursting the Big Data Bubble: The Case for Intuition-Based Decision Making", CRC Press
8. Christopher Chabris and Daniel Simons 2011) "The Invisible Gorilla: How Our Intuitions Deceive Us", Harmony
9. Frantz, Roger (2005), "Two Minds: Intuition and Analysis in the History of Economic Thought", Springer
10. Amir Erez and Adam M. Grant (2013), "Separating Data from Intuition: Bringing Evidence into the Management Classroom", Academy of Management Learning & Education
11. Darrell Huff and Irving Geis (1993), "How to Lie with Statistics", W. W. Norton & Company
12. Cole Nussbaumer Knaflic (2020), "Storytelling with Data - Let's Practice", Wiley
13. Cole Nussbaumer Knaflic (2015), "Storytelling with Data - A Data Visualization Guide for Business Professionals", Wiley
14. Foster Provost, Tom Fawcett (2019), "Data Science for Business". O'Reily
15. OpenAI (2023), "GPT-4 System Card", https://cdn.openai.com/papers/gpt-4-system-card.pdf