

MGMT 198

Managing Disruptive Change: *Artificial Intelligence for Business, Finance, and Sustainability* Q2 Fall 2020

Faculty Director: Professor Mauro Guillén

Guest Lecturers:

- Marc Lore (CEO, Walmart eCommerce)
- Manuela Veloso (Head of AI Research, JP Morgan Chase)
- Gretchen Jackson (VP and Chief Science Officer, IBM Watson Health)
- Jim Manzi (Founder and Partner, Foundry.ai)
- Vusal Najafov (Managing Director and Co-Head, Cowen Sustainable Investments)
- Maha Achour (CEO, Metawave)
- David Rolnick, Assistant Professor of Computer Science (McGill University)

Professors:

- Mauro Guillen, Professor of International Management (WH)
- Hamsa Bastani, Assistant Professor of OIDD (WH)
- David Rolnick, Assistant Professor (McGill University)
- Jason Moore, Professor of Biostatistics and Epidemiology (Penn Med)
- John Paul MacDuffie, Professor Management (WH)
- Prasanna Tambe, Associate Professor of OIDD (WH)
- Sarah Hammer, Managing Director of the Stevens Center for Innovation in Finance (WH), Adjunct Professor of Law (Penn Law)
- Shiri Melumad, Assistant Professor Marketing (WH)

Program Introduction:

The half-credit (0.5 CU) Managing Disruptive Change (MDC) course series exposes students to particular industries, ideas, or issues through collaborative partnerships between Wharton faculty and high-profile guest lecturers. It is an initiative of the Wharton Dean's Undergraduate Advisory Board (WAB) to provide students with long-term engagement to high-profile Wharton faculty and guest lecturers. Each year, the program will work to bring together academic and industry professionals to teach a current, thought-provoking topic in business. While educating students on current topics, the MDC program also aims to provide a framework for understanding other issues by connecting theory to practice.

Course Objectives:

In the 2020-2021 academic year, MDC presents “Managing Disruptive Change: Artificial Intelligence for Business, Finance, and Sustainability.” This course introduces students to how artificial intelligence is being

applied across multiple disciplines through an industry-focused lens via a weekly rotating professor / practitioner structure. The goals of this program are to:

- Allow students to see the connection between academic research and methodology to practical industry-focused applications of artificial intelligence.
- Enable students to learn from the teachings of industry leaders and take those lessons with them into their academic and professional lives.

Course Format:

- Fully virtual, synchronous or asynchronous (through recordings)
- 0.5 Course Units
 - Allow students the flexibility to incorporate into academic planning
 - Considered an elective for WUGR graduation requirements
- 7 Weeks in Q2 of Fall 2020
- The class will meet on 10/22, 10/29, 11/5, 11/12, 11/19, 11/24 (Thurs.-Fri. Schedule on Tues.-Wed.), and 12/3.
- 180-Minute Lectures on Thursdays from 3:00 - 6:00 PM, with a 15-minute intermission.
- If you are unable to attend the live lectures, you must view the recordings within four days of the live session and complete the associated quiz each week.

Grading:

Grades will be based on viewing the sessions live or asynchronous (30%), maintaining pace with assigned readings & multiple-choice quizzes (30%), and a final paper (40%) analyzing a specific topic within the course. The final paper will have a 2000 word minimum.

- Quizzes will be multiple-choice and related to both lecture content and assigned readings
 - Students will submit quiz responses through the Canvas page after viewing the lectures.
- Final papers will be graded peer-to-peer to promote student interaction and discussion of course materials, but will include a grade from one of the TAs.

This class will not be graded on a curve. Students may take the course Pass / Fail.

*For students taking the class for a letter grade, grades will be given according to the following table:

Letter grade	Percentage	Letter grade	Percentage
A+	97–100%	C	73–76.99%
A	93–96.99%	C–	70–72.99%
A–	90–92.99%	D+	67–69.99%
B+	87–89.99%	D	63–66.99%
B	83–86.99%	D–	60–62.99%
B–	80–82.99%	F	< 60%
C+	77–79.99%		

Final Project:

The final project will consist of a 2000-word paper written by a group of 4-5 students on a topic inspired by the course material. Topics are subject to approval by the TA or course instructors and should be an extension of an individual lecture topic.

You will choose a group, and each group will have a chance to express their preferences before being assigned to one of the topics from the curriculum below. For your topic, you will identify an argument which you will investigate through a combination of academic sources, popular press materials, and interviews with practitioners. Your group will produce a report which describes your thesis and approach to the topic, how this comports with academic / popular press findings, and how this topic applies or extends to the world today.

There will be groups of five, formed by Canvas signup. To address your question, you will locate a minimum of ten other research articles and, for each, provide a one-paragraph summary of how the article lends insight. You will supplement this research by interviewing at least one practitioner whose expertise aids your inquiry. Be sure to explain why this informant was chosen. Additionally, amassing other data to inform your question can enrich your findings. Each group will produce a 2,000-word paper (not including figures, tables, and references) **due on December 15 at 11:59pm, Philadelphia time.**

All papers will be peer-reviewed. Each student will be assigned another team's paper randomly. Students must submit their reviews by December 18 at 11:59pm, Philadelphia time.

Class Structure:

Each course will consist of a faculty introduction to the topic, an industry-expert lecture to provide in-depth analysis of the module, separated by a 15-minute intermission.

Course Materials:

- Required Readings: To be provided online via Canvas, under Files.

Program

Class # & Topic
<p>Class 1: Course Introduction & Overview (10/22/2020)</p> <p>Part I: AI, Information Systems, Deep Learning, and Explainability Professor: Mauro Guillen Professor Topic: Overview of what AI is, how it can be used in analyzing data, how deep learning works, and how deep learning raises explainability concerns</p> <p>Part II: The Sociology and the Ethics of AI Professor: Prasanna Tambe Professor Topic: Overview of the ethical questions and dilemmas posed by the proliferation of artificial intelligence and the resulting current / future regulatory responses needed</p>
<p>Class 2: AI and Sustainability (10/29/2020)</p> <p>Guest Professor: David Rolnick Professor Topic: Explain the different kinds of sustainability that exist and ways that sustainability has evolved and become more integrated and important within businesses. Discuss how artificial intelligence plays a role in creating sustainable business practices</p> <p>Practitioner: Vusal Najafov, Managing Director and Co-Head -- Cowen Sustainable Investments Practitioner Topic: Give insight into how artificial intelligence is being used to drive more sustainable and efficient processes and how that impacts companies</p>
<p>Class 3: Artificial Intelligence and the Future of Marketing (11/5/2020)</p> <p>Professor: Shiri Melumad Professor Topic: Explain how artificial intelligence will alter the way that companies pursue their marketing strategies.</p> <p>Practitioner: Jim Manzi, Founder and Partner -- Foundry.ai Practitioner Topic: Provide industry insight into company strategies around marketing technology advancement with artificial intelligence.</p>
<p>Class 4: Machine Learning and an Optimized Global Supply Chain (11/12/2020)</p> <p>Professor: Hamsa Bastani Professor Topic: Explore how global supply chains have developed over time and how the growing implementation of probabilistic processes and machine learning are further optimizing supply chains in an ecommerce-driven economy</p> <p>Practitioner: Marc Lore, CEO -- Walmart eCommerce, Founder -- Jet.com Practitioner Topic: Dive into a company's supply chain, modern day supply chain development and how they are utilizing machine learning, probabilistic analysis and artificial intelligence to allow for significant improvements to global supply chains (inventory location, demand predictions, etc)</p>

Class 5: Using AI to Accelerate Finance (11/19/2020)**Professor: Sarah Hammer****Professor Topic:** Overview on the applications of AI within the financial industry in terms of, but not limited to, lending, payments, insurance tech, regulations, digital currencies, and investment management**Practitioner: Manuela M. Valoso, Head of AI Research -- JP Morgan Chase****Practitioner Topic:** Provide industry insight on how AI is being utilized to move their company and the financial industry forward, as well as discuss successes, challenges, concerns, and future implications**Class 6: AI and Transportation (11/24/2020)****Professor: John Paul MacDuffie****Professor Topic:** Delve into how artificial intelligence will affect transportation and the various technological advances involved with these changes**Practitioner: Maha Achour, CEO -- Metawave****Practitioner Topic:** Discuss how the transportation industry is using AI to develop autonomous vehicles and new methods of personal and commercial transportation**Class 7: AI in Healthcare (12/3/2020)****Professor: Jason Moore****Professor Topic:** Provide an overview of the applications of artificial intelligence in healthcare, including in diagnostic efficiency, treatment development, personalized medicine, and drug discovery**Practitioner: Gretchen Jackson, VP and Chief Science Officer -- IBM Watson Health****Practitioner Topic:** Discuss the applications of Artificial Intelligence and machine learning in the healthcare industry, with a focus on any of the following subtopics: drug discovery, diagnostic efficiency, personalized medicine, preventative care, or CRISPR