Yale SCHOOL OF MANAGEMENT

Course Information

Course Number:	MGT 853
Course Title:	Artificial Intelligence: Strategy + Marketing
Term and Year:	Spring-2 2024
Class Meeting Time, Day:	Section 01: Tue / Thu 2:40 pm – 4:00 pm, Evans Hall 4210 Section 02: Tue / Thu 4:10 pm – 5:30 pm, Evans Hall 4210

Contact Information

Professor:

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Course Materials

- Textbook(s): None required
- Recommended Books: Instructor will provide required book chapters via Canvas.
- Readings: **See Outline of Class Sessions.**
- Software: **R or Python (or another language) may be used for assignments and project if needed. We will provide code for you to explore and comment on and potentially modify.**

Course Description and Objectives

Disclaimer: Syllabus is tentative. Please check latest version on Canvas by "Last Updated" date.

Course Description:

Artificial Intelligence is a general-purpose technology which has the potential to transform many aspects of business and society. In business, the impact ranges from commonplace predictive improvements at one end of the spectrum to opportunities for creating entirely new markets at the other. As background, the course will briefly introduce students to Artificial Intelligence / Machine Learning methods comprising of Unsupervised, Supervised and Reinforcement Learning. Through a combination of lectures and case studies, we will learn how to integrate AI into decision making, focusing on the strategic choices firms face in developing and using AI / ML, including generative AI. We will seek to understand how consumers, decision-makers other stakeholders evaluate decisions

made by AI systems and are impacted by it. We will examine the state-of-the-art in explainable and interpretable AI, which aim to make black-box decisions more transparent. Finally, the course will also explore issues at the intersection of AI and Society including fairness and bias, which have proved especially challenging to address.

Logistics: The course will be taught *in-person only* (there is no virtual option as per SOM policy).

Audit Policy: This is an elective class designed for graduate students at the Yale School of Management. Please note that this course will not be available for audit, and students must be officially registered to attend.

Course Objectives:

The course is designed to provide a strategic perspective on AI technologies, but given the broad scope of the topic, I've had to make tradeoffs in selecting areas to examine in depth. My goal is that a student who completes the course successfully should be able to:

- Understand the basics of AI and ML models
- Determine how AI objectives connect to business objectives and strategy
- Understand a framework for decisions on AI / ML and identify the major resources required to implement the chosen AI strategy
- Develop a perspective regarding new emerging AI technologies and how they could reshape markets and firms
- Evaluate the broader societal implications of AI, and how different stakeholders (consumers, employees, firms, regulators, investors and others) are impacted by AI.

Note: This is NOT a computer science or ML course. We will briefly review selected ML algorithms; however, we will not have a comprehensive or in-depth examination of how these algorithms work.

Course Requirements

Course Component	Details	Points
Assignments (Individual and Pairs)	See details below	50
Attendance and Class Participation (Individual)	Every class	30
Paper Presentation (Group)	See details below	25

Please see the Yale SOM Grading Policy at http://portal.som.yale.edu/page/grading-policy

Class Participation: AI Strategy is a class where significant value is derived from in-class discussions. You will be encouraged, and likely cold-called to air your views in class. Evaluation will be on the quality and to a lesser degree, the number of comments you make. Please come prepared to each class by reading the assigned material and thinking carefully about the preparation questions.

Description of Assignments and Projects

Assignments: Assignments are either individual, pair or group assignments. Please indicate the contribution of each person for assignments. Everyone in the group is expected to make a significant contribution to **each** assignment, so please budget time to discuss assignments. Late assignments will not be graded. No extensions or exceptions to any due dates should be expected. We don't have any makeup assignments for missed classes or assignments. However, if you have an extenuating circumstance, please contact **AASL**, and they will determine an appropriate course of action.

Your assignment submissions must be 4 pages or fewer (excluding any exhibits), in 11 or 12-point text font and double-spaced text. Make sure to include everyone's names in the submitted file. Please convert everything to one PDF file before submission and submit through Canvas. Please name the file in the following format. For individual assignments, please use the notation A1_LastName_FirstName.pdf. For pairs, include both names and only one submission. Details of Assignments will be posted on Canvas.

Due dates are listed in "Outline of Class Sessions" below. If you have any questions at all, please don't hesitate to check with the professor or TAs.

Project Presentation assignment (Group): All groups should be prepared to present in class. It is important to submit Slides through Canvas, so we can load them up well before class. Groups *must* be formed within section, not across sections.

After forming a group, students select a research paper to present at the end of the course. We will provide a curated list of academic papers representing cutting edge and seminal research in ML / AI to select from. In all cases, groups will receive the same presentation duration in class.
Custom Project: Students may also check with the instructor if they want to do a custom project.
Note: The same or similar project(s) cannot be submitted or presented in multiple courses. Please check with the professor if you are not sure.
Meeting with Professor: You will need to set up a meeting with the professor / TAs to go over the paper and obtain feedback and approval. We will send out links to help schedule meeting times during predefined blocks.

The deliverable for the final project will be a slide deck designed to be submitted and presented at the end of the course. Students will be evaluated on both the presentation and the content in the slides. The instructor will discuss project details in class.

Projects will be evaluated on the following aspects: (a) clarity of thought and presentation, (b) depth of analysis, (c) insights obtained and (d) value to audience. Depth is valued more than a comprehensive but superficial presentation. Interpreting the model, results and learnings and providing your own perspective is valued more, rather than merely repeating what the paper says.

Yale SOM Policies

Please see the Yale School of Management Bulletin at https://bulletin.yale.edu/bulletins/som/rights-and-responsibilities-students for Rights and Responsibilities of students and for the honor code.

Policy on use of Large Language Models (LLMs)

In this course, you may use LLMs, provided you include in your submission the LLM used and the specific prompts that were asked. I view it as a useful way to learn things. However, you need to answer the assignments in your own words.

Laptop/Device Policy

Usage NOT allowed without the express permission of the instructor. There will be (at most) a couple of sessions where laptops will be useful in class, and the instructor will specifically mention these in class.

Outline of Class Sessions

#	Date	Topic	Assignment Due (9 am)
Module A: AI Foundations			
1	Mar 26 (Tue)	Course Introduction and Supervised and Unsupervised Algorithms	
2	Mar 28 (Thu)	ML Essentials	
3	April 2 (Tue)	Deep Learning, Reinforcement Learning and Generative Models	**A1 (Individual / Pairs)**
Module B: AI Decision Making Framework			
4	April 4 (Thu)	Economics of AI $\Longleftrightarrow$ Business Strategy	
5	April 9 (Tue)	Decision Making with AI / Interpretable and Explainable AI	**A2 (Individual)**
6	April 11 (Thu)	Ethical Issues in AI	**Group Project Overview (one paragraph)**
Module C: AI in Business + Society			
7	April 16 (Tue)	Uber (CASE)	**A3 (Individual)**
8	April 18 (Thu)	Zebra Medical (CASE)	
9	April 23 (Tue)	Generative AI in practice + Guest Speaker	
10	April 25 (Thu)	Miroglio Fashion (CASE)	**A4 (Individual)**
11	April 30 (Thu)	Capstone: Human Capital	
Module D: Project Presentations and Course Wrap			
12	May 2 (Thu)	Presentations	**Presentation Slides Due for ALL groups on May 2**
13	May 7 (Tue)	Presentations and Course Wrap	

Note: The content of some sessions is likely to change. I will post an announcement when there are material updates to the syllabus.