Wharton University of Pennsylvania GLOBAL YOUTH PROGRAM

AI, Technology, and the Future of Business – MGMT0003

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Office Hours: TBA

Course Description:
One of the first high-school-level courses of its kind, *Artificial Intelligence and the Future of Business* is designed to introduce students to the science and application of artificial intelligence to emergent enterprises in the AI space. This course draws on readings and theories from technology strategy, entrepreneurship, and innovation management to help students understand the practical and societal implications of AI and digitalization beyond the technology industry. Through readings, case studies, and guest lectures, students will learn about how AI and technological developments drive entrepreneurial business strategies, innovate existing business models, and catalyze new entrepreneurial ventures. The course will also provide a general overview of different AI methods and processes and guide students toward additional opportunities for method development.

Learning Objectives:
- Understand the strategic importance of technology management and AI in business.
- Analyze the impact of technological innovations on business models and strategies.
- Develop skills for creating and managing technology-driven business ventures.
- Evaluate the ethical and societal implications of AI and emerging technologies.
- Apply strategic frameworks to real-world technology and entrepreneurship challenges.

Readings:
The readings assigned for each class are integral to the course. Students are expected to have read the listed readings for each class *prior* to the start of the session. Additionally, students are expected to come prepared with questions and critical insights to discuss with classmates. All readings will be available to download on the Canvas webpage.

Requirements and Grading:

- **Participation and Attendance: 15%**
  - Attendance in each class is mandatory; see absence policies below for excused absences. Students' participation will be evaluated based on thoughtful contributions to class sessions and proactive engagement of subject material. Students are expected to contribute to a positive, open learning environment.
- **Weekly Reflections: 30%**
  - See the syllabus below for each week's assignments. These can be reading 300-400 word reading responses, in-class activities, and case study-based projects.

Each assignment and its expectations will be discussed prior to the due date. While an assignment in each class may seem daunting, these assignments are designed to prepare you for active participation in each class and should not take up too much time beyond the course requirements. However, please be sure to keep up with each assignment. Repeated late or delayed submissions will necessitate an instructor check-in.

- **Discussion Leading: 20%**
    - For each week, a team of students will help facilitate part of our class discussion by providing summary PowerPoints and engaging peers through case questions. Each student should lead at least one week's discussion. Signups will be available during our first class session.
- **Final Project: 35% (Proposal 5% + Final Paper 30%)**
    - Students will identify a problem faced by a firm in the tech/AI space. Applying class topics and readings, you will provide a set of recommendations to the firm's leadership to formulate strategies to address this problem. More details for this assignment, including rubrics and grading expectations, will be distributed during the course. Please note that the proposal for your paper is due at least a week before the final paper; I recommend submitting the proposal sooner so you have more feedback to work with.

Late Submission Policy: **Without an excused reason approved at least 24 hours in advance, all assignments are due by the due date posted on Canvas. Late assignments will be marked down 10% for every 24 hours past the due date. No late assignments will be accepted 72 hours (3 days) after due date.**

Academic Integrity:

Students are expected to know and adhere to all university policies and procedures regarding academic integrity (cheating, fabrication, plagiarism, improper collaboration, etc.) and ethical standards of behavior. The work you submit in this class is expected to be your own. If you submit work that has been copied without attribution from any published or unpublished source including the Internet, or that has been prepared by someone other than you, or that in any way identifies somebody else's work as your own, you will be referred to Penn's Office of Student Conduct. For more information, please consult:

- **University Code of Academic Integrity** http://www.upenn.edu/academicintegrity/
- **Center for Community Standards and Accountability** https://csa.upenn.edu/
- **ChatGPT:** The unauthorized use of AI composition software violates academic integrity. This means that unless an assignment explicitly directs/allows you to use AI composition software (like ChatGPT), you may not use such tools to generate text that is subsequently submitted in your own name without attribution.

Additional Course Policies and Information

Generative AI/ChatGPT: Part of this course is about learning to ethically use AI and new technologies to set yourself up for success (in entrepreneurship and beyond). Hence, when allowed in the assignment description, Artificial Intelligence tools are permitted in this course

but are in no way a replacement for your independent critical thinking, analysis, and creativity. Policies about the acceptable use of these tools vary in different courses, and rules relating to academic integrity are not always obvious or clear. For the purposes of this class:

The use of generative AI tools is permitted in this course for the following activities:

- Brainstorming and refining your ideas
- Fine-tuning your research questions
- Finding information on your topic
- Drafting an outline to organize your thoughts
- Checking grammar and style
- Refining text that you have already written

The use of generative AI tools is not permitted in this course for the following activities:

- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts assigned to you or content that you put into a Zoom chat.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in accordance with the style format you are using (e.g., Chicago, MLA) and university policies on academic integrity. Any assignment that is found to have used generative AI tools in unauthorized ways will be referred to the Center for Community Standards and Accountability. When in doubt about permitted usage, please ask for clarification. These AI guidelines are adopted from UPenn's and Temple's AI Tools Guidelines for Academic Coursework.

Course Schedule:

Introduction to AI and Technology Strategy

Overview of Technology Strategy

- Key Concepts in Technology Management
  - Reading: "Right Tech, Wrong Time: How to Make Sure that Your Ecosystem is Ready for the Newest Technologies" by Adner and Kapoor (Harvard Business Review, 2016)

Additional Reading:

- "Ecosystems: Broadening the Locus of Value Creation" by Rahul Kapoor (Journal of Organization Design, 2018)
- "Profiting from Technological Innovation: Implications for Integration, Licensing, and Public Policy" by David Teece (Research Policy, 1986)

Introduction to AI and Machine Learning

- Types of Machine Learning: Supervised, Unsupervised, and Reinforcement Learning
- What is "Corporate AI"?
    - Reading: Chapters 4 & 5 of "A Human's Guide to Machine Intelligence" by Kartik Hosanagar

Additional Reading:

- "The First Wave of Corporate AI Is Doomed to Fail" by Kartik Hosanagar (Harvard Business Review, 2017)
- "Generative AI Won't Revolutionize Search Yet" (Harvard Business Review, 2023)

AI in Business Operations

AI Applications in Various Industries: Media, Finance, Healthcare, and Retail

- Case Study: "Elon Musk: Balancing Purpose and Risk" by Shikhar Ghosh and Sarah Mehta (Harvard Business School Case 817-040)
    - Reading: "Match Your Innovation Strategy to Your Innovation Ecosystem" by Ron Adner (Harvard Business Review, 2006)

Additional Reading;

- "Avoiding Disruption Requires Rapid Decision Making" by George Stalk Jr. and Sam Steward (Harvard Business Review, 2019)

Principles of Technology Entrepreneurship

- Identifying Opportunities in Technology Markets
    - Reading: "The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail" by Clayton Christensen

Additional Reading:

- "David and Goliath: Underdogs, Misfits, and the Art of Battling Giants" by Malcolm Gladwell (2015)
- "The Final Frontier: How Entrepreneurs Cracked the Aerospace Industry" by Anoop Menon and Laura Huang (Knowledge@Wharton)

Developing and Managing Technology-Driven Business Models

Business Model Innovation in the Tech Sector

- Lean Startup Methodology
    - Case Study: “SpaceX, Economies of Scale, and a Revolution in Space Access” by Matthew Weinzierl (Harvard Business School Case 720-027)
    - Reading: “Capabilities, Technologies, and Firm Survival during Industry Shakeout” by Nathan Furr and Rahul Kapoor (Strategic Management Journal, 2017)

Additional Reading:

- “Progress and Setbacks: The Two Faces of Technology Emergence” by Rahul Kapoor and Thomas Klueter (Research Policy, 2020)

Managing Technological Uncertainty

- Project Management Techniques for Tech Projects
- Agile and Scrum Methodologies
- Regulatory Risks
    - Reading: “Unbundling and Managing Uncertainty Surrounding Emerging Technologies” by Rahul Kapoor and Thomas Klueter (Strategy Science, 2020)

Additional Reading:

- “Start-Up Space: Update on Investment in Commercial Space Ventures” by Bryce Space and Technology (2020)
- Avoiding Disruption Requires Rapid Decision Making” by George Stalk Jr. and Sam Steward (Harvard Business Review, 2019)

Ethical and Societal Impacts of AI

Ethical Considerations in AI

- Societal Impacts and Responsible AI
    - Reading: “Innovation’s Uncertainty Factor” by Rahul Kapoor and Thomas Klueter (MIT Sloan Management Review, Fall 2020)

Additional Reading:

- “The First Wave of Corporate AI Is Doomed to Fail” by Kartik Hosanagar (Harvard Business Review, 2017)
- “Profiting from Technological Innovation: Implications for Integration, Licensing, and Public Policy” by David Teece (Research Policy, 1986)

Analyzing Successful Tech Startups

- Lessons Learned from Failures

- Reading: “Profiting from Technological Innovation: Implications for Integration, Licensing, and Public Policy” by David Teece (Research Policy, 1986)

Additional Reading:

- “Capabilities, Technologies, and Firm Survival during Industry Shakeout” by Nathan Furr and Rahul Kapoor (Strategic Management Journal, 2017)

Strategic Technology Management: Guest Lecture and Industry Insights

Learning from Experts in the Field

- Guest Speaker: Mateo Abascal, CEO and founder of Beamlink
  - Reading: “Progress and Setbacks: The Two Faces of Technology Emergence” by Rahul Kapoor and Thomas Klueter (Research Policy, 2020)

Additional Reading:

- “Ecosystems: Broadening the Locus of Value Creation” by Rahul Kapoor (Journal of Organization Design, 2018)
- “Avoiding Disruption Requires Rapid Decision Making” by George Stalk Jr. and Sam Steward (Harvard Business Review, 2019)

Strategic Frameworks for Technology and Innovation Management

- Readings [Choose Two]:
  - “Managing the Paradox of Exploitation and Exploration: The Role of Absorptive Capacity” by Charles A. O’Reilly and Michael L. Tushman (California Management Review, 2013)
  - “Dynamic Capabilities and Strategic Management” by David Teece, Gary Pisano, and Amy Shuen (Strategic Management Journal, 1997)
  - “The Innovator's Solution: Creating and Sustaining Successful Growth” by Clayton Christensen and Michael E. Raynor

AI-Driven Business Transformation and Course Wrap up

AI as a Catalyst for Business Transformation

- Readings [Choose Two]:
  - “AI-Driven Business Transformation” by Kartik Hosanagar (Harvard Business Review, 2020)
  - “Developing a Portfolio of AI Projects” by Andrew Ng (Harvard Business Review, 2019)
  - “Artificial Intelligence for the Real World” by Thomas H. Davenport and Rajeev Ronanki (Harvard Business Review, 2018)

Final Presentations

- Student Presentations on Final Projects
- Peer Feedback and Discussion