

**MOR 599-16722**

**Technology Innovation Strategy**

Wednesday, 6:30-9:30pm.; 3 units

JFF 328

Spring 2020

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NOTE: Email is the best way to contact me. I check it regularly.

## **COURSE DESCRIPTION**

The course draws from studies of *technical change* to provide a set of tools to craft a *technology strategy* as an integral part of business strategy. Technology strategy is “an integrated set of choices about how to use new technology to produce superior financial returns in the long run.” For businesses, making decisions about responding to a new technology developed by someone else or about introducing a new technology is integral to strategizing on how to compete in the marketplace. Furthermore, the focus on new technologies is essential because what matters from a competitive strategy perspective is *technological change*: technology carries the promise of making a strategic impact as long as not all businesses use the same technology.

All modern businesses need a technology strategy. Technology and innovation are pervasive in today’s business world. As a result, it is likely that, regardless of your chosen path, you will encounter situations where decisions about involvement with technology and innovation need to be made. Formulating a technology strategy implies well-thought-out plans on how to use technology to gain a competitive advantage and meet organizational goals in the long-run.

Rather than looking at the role of past technological changes in shaping societal and business outcomes, this class takes a *forward-looking approach* and focuses on emerging technologies and their likely role in shaping the technology strategy of modern businesses. To do that, the course follows a two-step approach. First, it focuses on *artificial intelligence (AI) and automation* as examples of new technologies that currently generate hype in the marketplace, are on the radar of business leaders and are expected to shape technology strategy in the future. Second, the assigned readings are based on theoretical studies and historical examples that facilitate deriving general-purpose principles which are then used in the context of AI and automation to discuss how they shape the technology strategy of forward-looking companies. In following this two-step approach, the course provides students with general-purpose principles that apply to the process of crafting a technology strategy regardless of the specific technology wave. To better understand these processes, the course also touches on technological innovation and the market for technologies.

Thus, the goal of this course is to provide those interested in managing organizations (including consultants) with a set of tools that can sharpen your ability to:

- Best prepare for and respond to waves of technological change that affect the behavior of competitors and customers;
- Best exploit waves of technical change to gain or maintain competitive advantage;
- Evaluate which technologies to invest in and how to time those investments.

## **COURSE OBJECTIVES**

1. Learn to evaluate the expected evolution trajectory of new technological waves. We will build these skills through class discussion, reading assignments, classroom exercises, individual assignments, and a team project.
2. Learn to evaluate the potential impact of new technological waves. We will build these skills through class discussion, reading assignments, classroom exercises, individual assignments, and a team project.
3. Learn to align an organization's goals to benefit from or sustain technological change. We will build these skills through class discussion, reading assignments, classroom exercises, individual assignments, and a team project.
4. Learn to discern the implications of getting engaged in technological innovation relative to being solely a technology consumer. We will build these skills through class discussion, reading assignments, classroom exercises, individual assignments, and a team project.

Let me dispel some myths: this course is not technical and hence will not turn a business student into a savvy engineer. Also, you should not expect to leave this course with a cook-book prescription for crafting a technology strategy. If anything, it will be obvious by the end that there are no simple recipes for strategic success in technology-intensive settings.

## **COURSE MATERIALS**

- Some cases and readings are available in the online case pack from Harvard Business School Publishing. There are also readings from a few books widely available. I am putting as many readings as possible in Blackboard to save costs, but some are under licence agreement.
- Books:
  - Agrawal, Ajay, Joshua Gans, and Avi Goldfarb. Prediction Machines: The Simple Economics of Artificial Intelligence. Harvard Business Review Press, 2018
  - McAfee, Andrew and Erik Brynjolfsson. Machine, Platform, Crowd: Harnessing Our Digital Future. New York: W.W. Norton and Company, 2018
  - Brynjolfsson, Erik and Andrew McAfee. The Second Machine Age, Norton: New York, 2016
  - Gans, Joshua. 2016. The Disruption Dilemma. Cambridge, MA: The MIT Press.
  - Moore, Geoffrey A. "Crossing the Chasm." Harper Collins 1999
  - Supplemental: Tegmark, Max. Life 3.0 Being Human in the Age of Artificial Intelligence. Alfred A. Knopf press, 2017

**INDIVIDUAL CONSULTATION** -- Office Hours, see above.

I am happy to meet with students to discuss progress or problems with the course materials and assignments. If you would like to meet, please contact me in advance to arrange a mutually convenient time. I am also available by email most days.

## **COURSE FORMAT**

This course will involve a mixture of lecture sessions and case analysis sessions. The assigned readings span a wide spectrum from magazine articles to academic papers. I chose this approach because we will discuss technologies that are at the frontier of innovation and hence evolving as we progress through our course. Furthermore, given these rapid contemporaneous developments, some of the theories we will discuss are also at the very frontier of economic and business thinking and hence are best understood by engaging with the very recent academic publications that documents them. To provide a fuller perspective on the course topics, I will also utilize some guest speakers (TBA) to provide a different perspective and insights from different technology-intensive industries.

## COMMUNICATION

Electronic communication for this course will take place through Blackboard, including lecture notes and information about the team project, etc. Check the Blackboard course page regularly.

## COURSE REQUIREMENTS AND EVALUATION

<u><i>Assignments</i></u>	<u><i>Points</i></u>	<u><i>% of Overall Grade</i></u>
<i>Class Participation</i>	<i>15</i>	<i>15%</i>
<i>Individual assignment 1</i>	<i>15</i>	<i>15%</i>
<i>Individual assignment 2</i>	<i>15</i>	<i>15%</i>
<i>Team project written report</i>	<i>20</i>	<i>20%</i>
<i>Team project oral discussion</i>	<i>10</i>	<i>10%</i>
<i>Final individual assignment</i>	<i>25</i>	<i>25%</i>
<b><i>TOTAL</i></b>	<b><i>100</i></b>	<b><i>100%</i></b>

### ***Participation – 15%***

Regular class participation is critical to successfully completing this course. You are expected to participate actively in each class session. You are encouraged to prepare for class with your colleagues. However, each member of the class should be fully conversant in the material. If for some reason you are not prepared, please let me know before the start of class to save us both the embarrassment of my calling on you.

Given the importance of class discussion, pre-class preparation is crucial. For cases, you should be prepared to set forth the core challenge facing the case protagonist(s), offer a critical assessment of the situation, and lay out cogently and persuasively a course of action. For readings, you should be prepared to outline the topic that each reading addresses, describe its central points, and offer your critical analysis of them. When cases and readings are assigned for the same day, you should be able to draw links between the case and reading in your discussion.

Disruptive behaviour, including but not limited to, arriving late, entering and exiting during the class, side conversations in class and use of cell phone will lower your participation grade as it distracts from the class discussion.

Assignment questions for each session will be posted to the course page in Blackboard, typically at least a week prior to the class for which they are assigned.

It is important to appreciate that class discussion is itself a collaborative activity. Please listen carefully to one another and attempt to build on or constructively critique prior comments. An effective participant:

- Is a good listener;
- Makes points relevant to the ongoing discussion;
- Makes comments that add to our understanding of the case, topic and/or article;
- Is willing to challenge ideas that are being expressed; and

- Integrates material from a variety of sources (e.g., past classes, other courses, and their own experience) to the discussions in class.

*Class Participation—Behavioral Anchor Rating Scale:*

*Excellent Performance*

- Initiates information relative to topics discussed
- Accurately incorporates knowledge of assignment content (cases, articles and lectures)
- Clarifies complex, nuanced points
- Shares relevant personal experiences or opinions related to the topic
- Actively participates in class exercises but does not try to dominate the conversation
- Demonstrates ability to apply, analyze, evaluate & synthesize course material
- Demonstrates willingness to attempt to answer challenging questions
- Effectively builds on other students' contributions

*Average Performance*

- Participates in group discussions rarely or when asked
- Demonstrates basic knowledge of course material
- Offers clear, concise, “good” information relative to class assignments
- Offers input, but tends to reiterate basic points or repeat points other have made
- Attends class regularly

*Unacceptable Performance*

- Fails to participate even when directly asked
- Gives no input to discussions
- Does not demonstrate knowledge from the readings or lectures
- Shows up to class: does nothing
- Distracts group / class (side conversations, entering and leaving class, etc.)
- Participation distracts from main flow of discussion

***Individual Assignments — 2 assignments x 15% each***

You will be asked to write two short case memos. These will center on a question (or set of questions) useful to help you focus on the strategic dilemma faced by the protagonists in the case. The report should not exceed three pages double-spaced (excluding any attachments) and should discuss not only what happened since the end of the case (no more than half a page) *but also the lessons learned in light of the concepts discussed throughout the course—this latter topic should be the main focus of the report.* The assignment is due (emailed to me or hardcopy) at the beginning of class on the day we discuss the case in class—no assignments will be accepted after we have discussed a case. The cases that qualify for this assignment are marked with a star (\*) in the schedule table at the end of this syllabus.

***Team Project – 20% (written report) +10% (presentation)***

Term projects will be completed in teams of 4-5 students, who are self-selected to work together. Teams should be finalized (and emailed to me) no later than the 3<sup>rd</sup> class session. Teams are used in this course because teams play central roles in organizations. Working in teams provides you with an opportunity to learn from your colleagues, and practice (and evaluate your own effectiveness) working, managing, solving problems, and making strategic decisions in a setting that approximates the management teams typically charged with such tasks.

Your team will need to select a company of their choice (the ones covered in any of the cases listed in the class schedule are excluded) and analyze its technology strategy with respect to a topic covered in the third section of the course readings “Strategy Implications”. The deliverables consist of a written report, a peer assessment and an oral in-class presentation. You need to clear your selected topic and company with me in advance. Teams are not allowed to select the company-topic combo; the proposals for company-topic combos will be evaluated on a first-come-first-served basis.

Please keep in mind that you do not have to select the full set of topics listed under a class session. Draw boundaries around a topic that you can reasonably analyze in some detail: too broad and your report will lack analytical depth, too narrow and your report will lack substance.

Oral in-class presentation: I will evaluate how effectively you state your arguments and answer your colleagues’ questions. The entire team needs to make their voice heard either during the presentation or the Q&A. I’ll announce the length of the allocated time once the teams are formed and I know the total number of teams in the class.

Written Report: The report should not exceed five pages double-spaced (excluding any attachments). *The report should not weight on summarizing the class reading assignments but rather focus on applying those insights to analyze the chosen company or business situation.*

Peer assessment: Each team member will do a peer assessment for every other member of the team. The results of the peer assessment will be used to adjust the overall team grade—students doing more than their share of the work will get a bump while students not doing their share of the work will receive a lower grade. I will provide a peer assessment form.

All these materials are due at the beginning of the class session during which you will present your report. I have set assigned two full class sessions for team project presentations at the end of the term. The order of presentation will be random, and I will announce it the week before. I expect all students to attend these sessions and be actively engaged in asking question. Your performance as an audience member will count towards your participation grade.

### ***Final Assignment – 25%***

During the exam week, I will provide a list of 4-5 questions that require critical thinking encompassing a large number of topics covered in class. Select one question and write your answer in a maximum three pages double spaced essay (excluding any attachments). This is a take-home assignment, due on the assigned exam date for this class.

## EMERGENCY PREPAREDNESS

In case of a declared emergency if travel to campus is not feasible, the USC Emergency Information web site (<https://emergency.usc.edu/>) will provide safety and other information, including electronic means by which instructors will conduct class using a combination of USC's Blackboard learning management system ([blackboard.usc.edu](http://blackboard.usc.edu)), teleconferencing, and other technologies.

## **STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS**

### **Academic Conduct:**

Students are expected to make themselves aware of and abide by the University community's standards of behavior as articulated in the [Student Conduct Code](#). Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct at <http://policy.usc.edu/scientific-misconduct>.

### **Support Systems:**

*Counseling and Mental Health - (213) 740-9355 – 24/7 on call*

[studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*

[suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention and Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call*

[studenthealth.usc.edu/sexual-assault](http://studenthealth.usc.edu/sexual-assault)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

*Office of Equity and Diversity (OED)- (213) 740-5086 / Title IX – (213) 821-8298*

[equity.usc.edu](http://equity.usc.edu), [titleix.usc.edu](http://titleix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following *protected characteristics*: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations. The university also prohibits sexual assault, non-consensual sexual contact, sexual misconduct, intimate partner violence, stalking, malicious dissuasion, retaliation, and violation of interim measures.

*Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298*

[usc-advocate.symplicity.com/care\\_report](https://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](https://dsp.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*USC Support and Advocacy - (213) 821-4710*

[uscsa.usc.edu](https://uscsa.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

*Diversity at USC - (213) 740-2101*

[diversity.usc.edu](https://diversity.usc.edu)

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

*USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*

[dps.usc.edu](https://dps.usc.edu), [emergency.usc.edu](https://emergency.usc.edu)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

*USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call*

[dps.usc.edu](https://dps.usc.edu)

Non-emergency assistance or information.

**COURSE CALENDAR**

	<b>Date</b>	<b>Topic</b>	<b>Readings</b>	<b>Assignments</b>
	<b>Part 1: Technology Trends - AI and Automation</b>			
1	Wednesday, January 15	Getting Started  What is technology innovation strategy?	Yin, Pai-Ling. "Strategy Reading: Technology Strategy." HBS Core Curriculum, 2015 [8127-PDF-ENG] (Only Chapters 1 "Introduction", 2.1. "What's Different About Technology Strategy" and 2.3. "To lead or to Follow?")  Agrawal, Ajay, Joshua Gans, and Avi Goldfarb, "Prediction Machines: The Simple Economics of Artificial Intelligence," Harvard Business Review Press, 2018. Chapter 2 (pp. 16-17).	
2	Wednesday, January 22	Technology Trends: automation, artificial intelligence and a brief history of technological evolution	Joel Mokyr "The Next Age of Invention: Technology's future is brighter than pessimists allow." in Brian C. Anderson ed., City Journal, Manhattan Institute, Winter 2014, pp. 14-20.  Brynjolfsson, Erik and Andrew McAfee. "The Second Machine Age". Norton: New York, 2016, Chapters 1-3.  Agrawal, Ajay, Joshua Gans, and Avi Goldfarb. "Prediction Machines: The Simple Economics of Artificial Intelligence." Harvard Business Review Press, 2018. Chapters 3 and 4.  McAfee, Andrew and Erik Brynjolfsson. "Machine, Platform, Crowd: Harnessing Our Digital Future." New York: W.W. Norton and Company, 2018, Chapter 3.  Lee, Kai-Fu. "The Four Waves of AI." Fortune Magazine, Nov. 01, 2018.	
3	Wednesday, January 29	The "reduction in cost" framework: Predicting technological impact by identifying complements and substitutes  Complements to AI: Data	Goldfarb, Avi and Catherine Tucker. 2019. "Digital Economies". Journal of Economic Literature, 57(1): 3-41.  Brynjolfsson, Erik and Andrew McAfee. "The Second Machine Age". Norton: New York, 2016, Chapter 4 and 9 (pg. 134-146).  Agrawal, Ajay, Joshua Gans, and Avi Goldfarb, "Prediction Machines: The Simple Economics of Artificial	List of team members due at the beginning of the class

			Intelligence”. Harvard Business Review Press, 2018. Chapter 2 (pg 9-15) and 5.	
4	Wednesday, February 5	Complements to AI: Human capital skills	<p>Agrawal, Ajay, Joshua Gans, and Avi Goldfarb, “Prediction Machines: The Simple Economics of Artificial Intelligence,” Harvard Business Review Press, 2018. Chapters 7 and 11.</p> <p>McAfee, Andrew and Erik Brynjolfsson. “Machine, Platform, Crowd: Harnessing Our Digital Future.” New York: W.W. Norton and Company, 2018. Chapter 2.</p> <p>Towards Understanding the Impact of Artificial Intelligence on Labor, 2019 Brynjolfsson, Erik and Tom Mitchell. "What Can Machine Learning Do?" Workforce Implications." Science 358(6370): 1530-1534.</p> <p>Brynjolfsson, E, Mitchell, T., Rock, D. (2018) “Why can Machines Learn and What does it Mean for Occupations and the Economy,” American Economic Review, 108, 43-47.</p>	
<b>Part 2: Strategy Implications</b>				
5	Wednesday, February 12	Disruptive technologies: disruptive vs sustaining technologies and organization strategies for managing disruption	<p>“The Clayton M. Christensen Reader” by Clayton M. Christensen (15003-PDF-ENG) (Chapters “Disruptive Technologies: Catching the Wave” and “Meeting the Challenge of Disruptive Change”)</p> <p>Gans, Joshua. 2016. The Disruption Dilemma. Cambridge, MA: The MIT Press. (Chapter 5)</p> <p><i>Case 1: Tesla (the disruptor)</i> Sayan Chatterjee and Dennis Terez, “Tesla: Testing a Business Model at Its (R)evolutionary Best”, Ivey case, 2018 [W18126-PDF-ENG].</p> <p><i>Case 2: General Motors (a disrupted incumbent)*</i> Daniel Doiron and John Higgins, “General Motors and the Electric Car Revolution: Boom or Bust?”, Ivey case, 2019, [W19254-PDF-ENG].</p>	The General Motors case is a valid selection for individual assignment. Please hand in your written report at the beginning of the class.
6	Wednesday, February 19	The Diffusion S-Curve, the technology S-curve	Yin, Pai-Ling. “Strategy Reading: Technology Strategy.” HBS Core Curriculum, 2015 [8127-PDF-ENG] (Only	The Autonomous Vehicle case is a valid selection

		and dominant design: definitions and organization strategies for managing technology adoption and diffusion	<p>sections “Growth” pg. 16-23 and “Maturity” pg. 23-24, and Chapters 2.4. “Strategies for New Markets” pg. 26-27 and 2.5. “Strategies for Existing Markets” pg. 27-31)</p> <p>Moore, Geoffrey A. “Crossing the Chasm.” Harper Collins 1999. Chapter 1</p> <p>Agrawal, Ajay, Joshua Gans, and Avi Goldfarb. “Prediction Machines: The Simple Economics of Artificial Intelligence.” Harvard Business Review Press, 2018. Chapter 15.</p> <p><i>Case: Autonomous Vehicles*</i> William R. Kerr; Allison M. Ciechanover; Jeff Huizinga; James Palano. “Autonomous Vehicles: The Rubber Hits the Road... but When?” HBS case, 2018 [818088-PDF-ENG].</p>	for individual assignment. Please hand in your written report at the beginning of the class.
7	Wednesday, February 26	Strategic considerations of disruption, adoption and diffusion for automation and AI: data and human capital skills	<p>Agrawal, Ajay, Joshua Gans, and Avi Goldfarb. “Prediction Machines: The Simple Economics of Artificial Intelligence.” Harvard Business Review Press, 2018. Chapters 6, 16 (pp. 171-177) and 18.</p> <p>Acemoglu, Daron and Pascual Restrepo. 2019. “The Wrong Kind of AI? Artificial Intelligence and the Future of Labor Demand.” NBER working paper # 25682.</p> <p><i>Case: Vodafone and chatbots*</i> William R. Kerr and Emer Moloney, “Vodafone: Managing Advanced Technologies and Artificial Intelligence”, HBS case, 2018 [318109-PDF-ENG].</p>	The Vodafone case is a valid selection for individual assignment. Please hand in your written report at the beginning of the class.
8	Wednesday, March 4	Tools for developing AI technology strategies	<p>Agrawal, Ajay, Joshua Gans, and Avi Goldfarb, “Prediction Machines: The Simple Economics of Artificial Intelligence.” Harvard Business Review Press, 2018. Chapters 12, 13 and 14.</p> <p>Andrew Ng, “How to Choose your First AI Project”, HBR 2019 [H04S3S-PDF-ENG].</p>	
9	Wednesday, March 11	Strategy considerations for technology innovators: breakthrough innovations and building internal	<p>Yin, Pai-Ling. “Strategy Reading: Technology Strategy.” HBS Core Curriculum, 2015 [8127-PDF-ENG] (Only pg. 8-11)</p> <p>Lynda M. Applegate and William R. Kerr, “Leading Breakthrough Innovation in</p>	The NVIDIA case is a valid selection for individual assignment. Please hand in your written

		innovation capabilities	Established Companies”, HBS Core Curriculum, 2016 [5272-PDF-ENG] (Chapters 1, 2.1. and 2.2)  <i>Case: NVIDIA and AI leadership*</i> Michael D. Watkins, Lisa Duke, Sonia Tan, Christopher Read, Rathan Kinhal, “NVIDIA: Winning the Deep-Learning Leadership Battle”, IMD case 2019 [IMD980-PDF-ENG]	report at the beginning of the class.
10	Wednesday, March 18	Spring Break, no class		
11	Wednesday, March 25	Strategy considerations for technology innovators: collaborating for innovation	Lynda M. Applegate and William R. Kerr, “Leading Breakthrough Innovation in Established Companies”, HBS Core Curriculum, 2016 [5272-PDF-ENG] (Chapter 2.3)  MacCormack, Alan, Murray, Fiona and Erika Wagner. “Spurring Innovation Through Competitions.” Sloan Management Review, 55(1): 25-32, 2013.  <i>Case: The Netflix prediction model</i> Karim R. Lakhani, Wesley M. Cohen, Kynon Ingram, Tushar Kothalkar, Maxim Kuzemchenko, Santosh Malik, “Netflix: Designing the Netflix Prize (B), HBS case, 2014 [615025-PDF-ENG].	
12	Wednesday, April 1	Technology commercialization strategies	Yin, Pai-Ling. “Strategy Reading: Technology Strategy.” HBS Core Curriculum, 2015 [8127-PDF-ENG] (only “Commercialization” section, pg. 12-15)  Gans, Joshua and Stern, Scott. “The Product Market and the Market for Ideas: Commercialization Strategies for Technology Entrepreneurs.” Research Policy, 32(2), pp. 333-350, 2003.  M. Marx, J. Gans, and D. Hsu. “Dynamic Commercialization Strategies for Disruptive Technologies: Evidence from the Speech Recognition Industry”. Management Science 60(12):3103-3123, 2014 (Only sections 1 and 5)	
13	Wednesday, April 8	“Winner Take All” Markets: what they are and why it matters for AI	Brynjolfsson, Erik and Andrew McAfee. The Second Machine Age, Norton: New York, 2016. Chapter 10.  <i>Case: Google</i>	

			Benjamin Edelman and Thomas R. Eisenmann. "Google Inc. in 2014." [915004-PDF-ENG] 2014.	
14	Wednesday, April 15	Broder strategic implications: policy and society	<p>Agrawal, Ajay, Joshua Gans, and Avi Goldfarb, "Prediction Machines: The Simple Economics of Artificial Intelligence." Harvard Business Review Press, 2018. Chapter 19.</p> <p>Brynjolfsson, Erik and Andrew McAfee. "The Second Machine Age," Norton: New York, 2016. Chapters 11 and 13.</p> <p>Supplemental: Tegmark, Max. Life 3.0 Being Human in the Age of Artificial Intelligence. Alfred A. Knopf Press, 2017.</p> <p>Guerreiro, Joao, Sergio Rebelo, Pedro Teles (2017), "Should Robots be Taxed?" Working Paper, No.23806, NBER.</p>	
15	Wednesday, April 22	Team project presentations		
16	Wednesday, April 29	Team project presentations  Course wrap-up, questions, comments		
	<b>FINAL</b> Wednesday, May 6			Take-home exam due by midnight

## Appendix I. MARSHALL GRADUATE PROGRAMS LEARNING GOALS

### How MOR 599 Contributes to Marshall Graduate Program Learning Goals

Marshall Graduate Program Learning Goals	MOR599 Objectives that support this goal	Assessment Method*
<p><b><i>Learning Goal #1: Develop Personal Strengths.</i></b>  <b>Our graduates will develop a global and entrepreneurial mindset, lead with integrity, purpose and ethical perspective, and draw value from diversity and inclusion.</b></p>		
1.1 Possess personal integrity and a commitment to an organization’s purpose and core values.		
1.2 Expand awareness with a global and entrepreneurial mindset, drawing value from diversity and inclusion.		
1.3 Exhibit awareness of ethical dimensions and professional standards in decision making.	2	Readings
<p><b><i>Learning Goal #2: Gain Knowledge and Skills.</i></b>  <b>Our graduates will develop a deep understanding of the key functions of business enterprises and will be able to identify and take advantage of opportunities in a complex, uncertain and dynamic business environment using critical and analytical thinking skills.</b></p>		
2.1 Gain knowledge of the key functions of business enterprises.	1, 2, 3, 4	Individual assignments, team assignment
2.2 Acquire advanced skills to understand and analyze significant business opportunities, which can be complex, uncertain and dynamic.	1, 2, 3, 4	Participation assessment, individual assignments, team assignment
2.3 Use critical and analytical thinking to identify viable options that can create short-term and long-term value for organizations and their stakeholders.	1, 2, 3, 4	Participation assessment, individual assignments, team assignment
<p><b><i>Learning Goal #3: Motivate and Build High Performing Teams.</i></b>  <b>Our graduates will achieve results by fostering collaboration, communication and adaptability on individual, team, and organization levels.</b></p>		
3.1 Motivate and work with colleagues, partners, and other stakeholders to achieve organizational purposes.	1, 2, 3, 4	Team assignment
3.2 Help build and sustain high-performing teams by infusing teams with a variety of perspectives, talents, and skills and aligning individual success with team success and with overall organizational success.		
3.3 Foster collaboration, communication and adaptability in helping organizations excel in a changing business landscape.	1, 2, 3, 4	Team assignment