The Economics of Artificial Intelligence

Spring 2025

ECON 390 (#22715) & ECON 691 (#21546)

Professors: Andrew Hobbs (ahobbs@usfca.edu) and Konrad Posch (kposch@usfca.edu)
Dates: January 27 – May 5, 2025
Time: Mondays, 4:45 – 6:25pm
Location: Main Campus, Room Cowell Hall 312
Number of Units: 2
Office Hours: Prof. Hobbs (Thursdays 10-11am, McLaren 118, zoom by appointment)
Prof Posch (Mondays, 3-4pm, McLaren 111, zoom by appointment)

Course Description

Artificial intelligence is the most-discussed technology in the last couple years, owing to the breakout success of ChatGPT. But the societal discourse around it is poorly-understood and often prone to hyperbole.

This class is designed to introduce students to gain a wider understanding and appreciation for the economic and social implications of artificial intelligence. The course explores a wide range of topics concerning artificial intelligence, such as fairness considerations, employment dynamics, and regulation. Through student-led discussions, presentations, and writings oriented around questions and readings, students will develop nuanced perspectives on the upcoming challenges and opportunities.

This class prioritizes critical thinking, encourages diverse viewpoints, and enhances students' proficiency in analyzing and discussing core topics. By contrast, the class does not seek to establish "correct" answers, given the nascency and uncertainty of the field. Your goal in this course is to consider what authors, professors, and your fellow students think about the economic and social impact of AI and form that not into "the" correct answer but instead in "an" answer which makes sense to you and which you can support with evidence. All assignments in the course are designed and graded with this in mind.

For MSAE students, this class fulfills the 2-unit Professional Communication requirement.

Learning Outcomes

Students should learn the following by completing the course:

- How to think critically about the economic and social implications of artificial intelligence.
- How to evaluate risks and solutions associated with artificial intelligence.
- How to communicate insights and questions in written and oral form, both individually and in a large group setting.
- How to present and steer discussions, including how to encourage informed debate and how to find consensus among a variety of viewpoints.

Admission and Prerequisites

Undergraduate Economics students should have taken ECON 111.

Graduate Economic students should have taken ECON 501 or ECON 603.

Students outside of the Economics department are welcome. If you have not taken these prerequisites, please speak with the professors about your background. We welcome a diverse range of perspectives, but we would like to understand your interests and motivations to ensure you can get the most out of it.

Course Structure

Following the first two weeks of introductory lectures (led by the professors), the course will spend each week covering a single topic related to artificial intelligence (e.g. regulation, employment, etc).

Each session following the introductory lectures, class will consist of approximately one hour of lecture and 40 minutes of **student led** discussion.

For the discussions, one group of students will lead the discussion each week (signups in week 2, discussions begin week 3). The discussion leaders will prepare a set of two slides, one which summarizes the primary issues in the reaction papers that week, the other which poses three questions to prompt discussion. See the description below for full details and expectation for discussion leaders.

All other students are expected to do the readings and write a short reaction paper in advance of class each week. (The students leading the discussions that week are expected to do the readings, of course, but they are exempt from writing reaction papers for the week they are leading discussion. Instead, they will be reading their classmates discussion papers and using them to frame discussion)

Grading

Undergraduates Registered for ECON 390 will be graded based on the following framework:

50% – Reaction Papers (due at 12pm (noon) every Friday before a week you are not presenting)
10% – Preparation for Leading Discussion (Summary and Question Slides)
20% – Leading Discussion (One Session Per Student, in a group of 2-3, see below)
20% – Participation

Graduate Students Registered for ECON 691 will be graded based on the following framework:

50% – Reaction Papers (due at 12pm (noon) every Friday before a week you are not presenting)
20% – Final Presentation of Class Discussion “Conclusions” (During Last Two Weeks of Class)
10% – Preparation for Leading Discussion (Summary and Question Slides)
10% – Leading Discussion (One Session Per Student, in a group of 2-3, see below)
10% – Participation

Reaction Papers (due 12:00pm (Noon) every Friday BEFORE a week you are <u>not</u> a discussion leader)

Beginning Week 3, each week that a student is not presenting, they are expected to write a reaction paper of 200-300 words and submit it by 12pm PT (noon) the Friday prior to the Monday class through the relevant Canvas assignment.

Your reaction paper should **<u>be focused on a *single* argument</u>** (e.g. a question that the readings did not address satisfactorily, a criticism of one of the reading's arguments, a point that the readings should have addressed, etc). Your response should be primarily and firmly grounded in the readings for the week including specific citations to them. While the best reaction papers may include external references or articles to develop this argument fully, this is **<u>not</u>** required and **<u>cannot</u>** replace a discussion of the assigned readings for the week. Your primary assignment here is to read and engage deeply with the issues in the readings and then form your thoughts into an argument for what you think the class should discuss that week.

Reaction papers will be scored on three tiers: Excellent, Satisfactory, or Unsatisfactory. Missing papers will receive a mark of no credit.

Discussion Leaders (Begins Week 3, one presentation per student during the semester in a group of 2-3 students)

<u>Sign-ups for each topic will be handled in class Week 2.</u> Please look ahead at the syllabus to see which topics are most interesting to you and will fit any predicted absences you might have.

Beginning in Week 3, each class will spend the second half (last 40 minutes) with a group of **<u>up to three</u>** students who will be responsible for the following:

1. Reading all of the reaction papers from your classmates that week. Your instructors will email these to the discussion leaders by Friday at 1pm the week BEFORE they are presenting.
2. Meet with your group to discuss the major themes and issues in the papers (in person is strongly encouraged, but zoom is OK)
3. Prepare exactly two (2) slides (no more, no less, use the template posted on canvas)
    a. Slide 1: Major Themes and Issues from the Reaction Papers
        i. Identify 3-5 major themes from the reaction papers
        ii. Explain each theme on this slide in no more than 10 words per theme (fewer is ALWAYS better)
        iii. Select one group member to quickly present this slide to the class (5 minutes or less)
    b. Slide 2: Discussion Questions
        i. Create three (exactly three, no more, no less) questions which your group thinks captures critical issues which we should discuss as a class

ii. Write these questions on this slide. Try to keep them to 10 words or less each.

4. Submit these slides to the Canvas Assignment no later than 4:30pm on the Monday of class (15 minutes before class starts)
    a. Only one group member needs to do this.
5. Lead the discussion for the second half of the relevant class
    a. Start with your 5 minute presentation of the reaction papers summation (one student should present)
    b. The rest of class should then focus on your discussion questions. Start with the first one and try to get to all three before the class ends.
    c. YOU (the discussion leaders) will be moderating the discussion, not the instructors.
    d. The instructors will participate in the discussion, and will chime in as needed to help with logistics, but the discussion leaders are in charge of the substance, who gets called on, how the discussions develop, etc.

(Note: Non-presenting students will submit their reaction papers through Canvas each Friday at Noon as explained above and the instructors will send the relevant papers to the presenting group no later than 1pm on that same Friday so they have time to prepare for Monday's class.)

Presentations will be scored across two dimensions:

- quality of preparation
- ability to lead discussions.

Each dimension will be scored on the same three tiers: Excellent, Satisfactory, or Unsatisfactory.

All members of the group will receive the same grade.

Graduate Student Theme Summation Presentations (Only for those enrolled in ECON 691, second to last week of class)

Since AI and its economic implications are very new, one of the most useful things we can do in this class is see where we, as a group and individually, stand after spending the 10 weeks engaging critically with many different perspectives on the topic. To that end, our graduate student members of the course will each select what they believe is a key takeaway from the course and prepare a 15 minute presentation on how they believe we (and they) understand that take away.

Note: We will spend the last 15 minutes of the previous class (April 21) listing our key takeaways. This will form the list which graduate students will select a topic from.

For these presentations, graduate students should:

1. Review their notes from the course on the theme they select

2. Review Relevant reaction paper summaries from discussion leader slides (on canvas)
3. Do some independent research if there are outstanding questions from this review of notes they think can be quickly (e.g. 30 minutes or less) answered.
4. Prepare a slide deck (7 slides max)
    a. Title Slide (including your name and the theme)
    b. Theme Overview Slide
        i. Name Major Issues Discussed
        ii. Name Major Positions taken
    c. State Their Position on the Theme
        i. Which side(s) to they take
        ii. What other side(s) do they reject
    d. Defend Their Position on the Theme
        i. Why do they think this is the best understanding of this theme?
    e. Why this Theme Matters
        i. Who is this theme relevant for beyond the course? (People, professions, groups, etc.)
        ii. What policies or types of companies is this theme relevant for?
    f. Conclusion
        i. Restate the Theme (10 words or less)
        ii. Restate your position (10 words or less)
        iii. Restate why this matters and to whom (10 words or less)
    g. *You'll note that we've only outlined 6 slides here. You may need two slides for one of these tasks. You should by no means have more than a total of 7 slides, however)*
5. Practice your 15 minute presentation BEFORE class. Make sure it's going to fit within your 15 minute block. If it's too short, figure out what more there is to say. If it's too long, figure out what to cut out of your narration.
6. Be ready for a Q&A after your presentation. It will be brief, but you should be ready to answer questions.

Grading will be based on a rubric posted to Canvas before the presentation. It will cover preparation of the required slides and material as well as quality of the presentation.

There will be 5 presentations on April 28th. If we need more time, we will roll over additional presentations to next week. The order of presentations will be assigned randomly to graduate students on April 21st.

There will be no required readings, reaction papers, or discussion leaders for this week. Undergraduate students are required to attend and expected to ask questions of the presenters.

Participation

Students are expected to participate in each and every discussion. The final component of the grade is thus participation.

Participation in this course will be evaluated by your instructors based on your active engagement in the class. Participation requires showing up and being involved in the course. This means lecture Q&A, discussion, and office hours. Please read the assignment descriptions on the Canvas site and talk to your instructor well in advance of the end of the semester if you are concerned with your participation. If you would like to earn a higher participation grade, participate more actively whether in lecture Q&A, discussion, or office hours. Students who are not active may be called on directly by the professors. Students who still do not participate meaningfully in the discussion after that point will have their grade penalized accordingly. Participation will be graded holistically

You are **required to attend all class sessions**. Please contact your instructor in advance using the Excused Absence Request Form if you need be excused from a class session.

A **makeup assignment** consisting of an additional reaction paper (see above) must be turned in to the professors by email **no later than one week after an absence** for the absence to be excused (note, the purpose is to get you to reflect upon and synthesize the readings for that class period so you keep up with the course, rather than to stimulate discussion as a normal reaction paper would). This makeup reaction paper will be graded more leniently than a regular reaction paper, but you should still strive to make a point rather than simply summarizing the readings or filling the space with stream-of-consciousness.

No more than one absence may be excused during the term due to the limited total number of sessions.

Extra Credit

We will not provide individual extra credit plans, as any such opportunities must be made available to all students and we do not expect to alter the course plan to include them. Your best strategy for success in this course is to engage with the material both in readings, in reaction papers, and in class discussions.

Course Reading Access

This course covers topics that are *relatively* new, and there is no comprehensive course textbook that addresses them all. The readings will thus be an assorted mix of papers, articles, blogs, and podcasts. All required readings will be made available through the course Canvas site. Many are open-access and linked in the syllabus below while others are available to you through the Gleeson Library's digital services or will be provided as fair use PDFs. **The authoritative list of and access to readings will be through the modules section of the Canvas website.**

https://usfca.instructure.com/courses/1625840/modules

If you have difficulty accessing a reading, please be sure to read the Gleeson library guide on how to set up access (linked at the top of the modules page). If you are still unable to access a reading, *please email the instructors ASAP so we can fix it for everyone!*

The course also includes optional readings for each week, some of which may not be open-access. (The optional readings do not have to be included in either the reaction papers or presentations, but they may be useful as additional source material.)

Readings may be altered at the discretion of the professors, given the speed at which the literature is evolving. Any changes will be communicated at least one week in advance of the associated class. We will make no significant change to the amount or difficulty of readings from those listed below, although we may change readings if current events or new publications cover the topics better.

Course Topics and Readings

Week 1: (January 27) Introduction

a. Course Themes and Course Expectations
b. Required Readings
   i. "Chapter 4. What Is to Be Done? Prescriptions and Recommendations" in Brynjolfsson, Erik, and Andrew McAfee. 2012. *Race Against the Machine: How the Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy*. Lexington, Mass: Digital Frontier Press.
   ii. Amodei, Dario (October 2024). "Machines of Loving Grace." Link
c. Optional Readings
   i. None listed.

Week 2: (February 3) Technical Foundation

We will be signing up for discussion leaders during this class. If you miss class, you'll be assigned automatically to wherever there are gaps in the schedule. Don't miss class.

a. How does a Large Language Model work? What are the core components and steps needed for it to function? What is "Generative AI" vs previous generations of machine learning, intelligence, algorithms, etc.
b. Required Readings

i. Wolfram, Stephen (February 14, 2023). "What is ChatGPT Doing… and Why Does It Work?" Stephen Wolfram Writings. Link.
ii. "New Scaling Laws for Large Language Models" (April 1, 2022). Less Wrong blog. Link.

c. Optional Readings
i. Athey, Susan (2018). "The Impact of Machine Learning on Economics." *The Economics of Artificial Intelligence: An Agenda*. Link.
ii. Hoffman, Jordan, et al (March 29, 2022). "Training Compute-Optimal Large Language Models." arXiv. Link.
iii. Mullainathan, Sendhil, and Jann Spiess (2017). "Machine Learning: An Applied Econometric Approach." *Journal of Economic Perspectives*, 31 (2): 87-106. Link.

Week 3: (February 10) Experience of the Takers

a. This week focuses on two types of AI "takers": companies and people. What can/should/do companies who bundle AI "off the shelf" into their products/services think about when integrating AI into their current and future product offerings? What can/should/do customers/consumers who are subjected to AI either as inputs (data to be processed) or outputs (customers for AI-produced products/services) think about when making their purchasing decisions?

b. Required Readings
i. Anderson, Chris. 2008. "The End of Theory: The Data Deluge Makes the Scientific Method Obsolete." *Wired*, June 23, 2008. link.
ii. "Introduction" and "Chapter 1- Bomb Parts: What is a Model?" in O'Neil, Cathy. 2016. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Crown.
iii. Farrell, Henry, and Marion Fourcade. 2023. "The Moral Economy of High-Tech Modernism." *Daedalus* 152 (1): 225–35. Link.

c. Optional Readings
i. Mullainathan, Sendhil, and Ziad Obermeyer. 2017. "Does Machine Learning Automate Moral Hazard and Error?" *American Economic Review* 107 (5): 476–80. link.
ii. Kleinberg, Jon, Jens Ludwig, Sendhil Mullainathan, and Ashesh Rambachan. 2018. "Algorithmic Fairness." *AEA Papers and Proceedings* 108 (May): 22–27. link.

No Class (February 17) President's Day Holiday

NOTE: You will still need to turn in your reaction paper for the Week 4 readings by Friday, February 21 at Noon.

Week 4: (February 24) US-China Competition in AI

Due to the special event speaker, there will be no student discussion leaders this week. HOWEVER, you are still expected to complete a reaction paper by the Friday before this class as usual.

a. This week is a book talk by Jeffrey Ding, author of Technology and the Rise of Great Powers: How Diffusion Shapes Economic Competition. He has been invited by the University to give a zoom talk on Chapter 7 of his book. We will be **gathering in person in the usual room** to

watch the talk together and then briefly discuss takeaways. Prof. Posch will lead the post-zoom discussion and moderate any questions we may wish to ask the speaker as a class during the Q&A period of the talk.

b. Required Readings

   i. "7 - US-China Competition in AI and the Fourth Industrial Revolution." In *Technology and the Rise of Great Powers*, 179–209. Princeton University Press, 2024.

c. Optional Readings

   i. None

Week 5: (March 3) Experience of the Makers

a. What should the people and companies that make AI consider in their development? Specifically, how should they design the business and product strategy, how should they make choices between open versus closed source development, and how should they set up the corporate governance of the firm?

b. Required Readings
   i. Varian, Hal (2019). "Artificial Intelligence, Economics, and Industrial Organization." *The Economics of Artificial Intelligence: An Agenda*. Link.
   ii. Goldman, Sharon (November 3, 2023). "Forget ChatGPT, why Llama and Open Source AI win 2023." *VentureBeat*. Link.
   iii. Harris, David Evan (January 12, 2024). "Open Source AI is Uniquely Dangerous." IEEE Spectrum. Link.
   iv. Tallarita, Roberto (December 5, 2023). "AI Is Testing the Limits of Corporate Governance. *Harvard Business Review*. Link.
   v. Posner, Eric (January 11, 2024). "AI revolution likely to cement Big Tech monopoly." *The Asset*. Link.

c. Optional Readings
   i. Liesenfeld, Andreas, Alianda Lopez, Mark Dingemanse (July 8, 2023). "Opening up ChatGPT: Tracking openness, transparency, and accountability in instruction-tuned text generators." arXiv. Link.
   ii. Narechania, Tejas and Ganesh Sitaraman (January 17, 2024). "An Antimonopoly Approach to Governing Artificial Intelligence." SSRN. Link.

No Class (March 10) Spring Break

a. NOTE: You will still need to turn in your reaction paper for the Week 6 readings by Friday, March 14 at Noon. If you do not wish to do this work during spring break, please plan ahead, do the readings the week before (since class is on a Monday, this should be your usual tempo) and submit the paper by March 7).

b. Discussion leaders for Week 6: please speak with the instructors after class on Monday, March 3 so that you can plan a time to meet up and prepare to lead discussion. This could be a zoom meeting while you are on spring break or you could do it the morning of Monday, March 17th. We don't need to dictate your plan, but you must have a plan.

Week 6: (March 17) Employment

(Note: Yes, this is St. Patrick's Day. Yes, there is still class, per the university Academic Calendar)

a. How will AI shape the future of work? Specifically, what are the skills, tasks, and positions that AI will augment and enhance; and which are the skills, tasks, and positions that AI will substitute and replace?
b. Required Readings
    i. Acemoglu, Daron, and Simon Johnson (February 6, 2023). "What's Wrong with ChatGPT?" Project Syndicate. Link.
    ii. Baily, Martin Neil, Erik Brynjolfsson, and Anton Korinek (May 10, 2023). "Machines of mind: The case for an AI-powered productivity boom." Brookings Commentary. Link.
    iii. Brynjolfsson, Erik, Danielle Li, and Lindsey Raymond (April 25, 2023). "Generative AI at Work." Link.
    iv. Evans, Benedict (July 2, 2023). "AI and the automation of work." Link.
c. Optional Readings
    i. Acemoglu, Daron (August 2021). "Harms of AI." Working Paper. Link. *Note: it is acceptable to skip over the math.*
    ii. Kreitmeir, David, and Paul Raschky (April 20, 2023). "The Unintended Consequences of Censoring Digital Technology – Evidence from Italy's ChatGPT Ban." Link.

Week 7: (March 24) Economic Regulation

a. Regulations and governance make markets work. How can/should/has/will AI technology be integrated into the economic regulatory structures that make markets possible? What are the implications of regulation of AI?
    i. Note: This week and next week, we adopt the useful if problematic distinction between ECONOMIC regulation (the rules that make markets work) and SOCIAL regulation (the rules that protect people from social harms…. Often caused by markets….so that markets can work). This is a **useful analytic distinction but not a fundamental truth** of the universe; economic regulations exist to promote certain social goods and social regulations exist to make markets possible.
b. Required Readings
    i. "1. The Marketcraft Thesis" from Vogel, Steven K. *Marketcraft: How Governments Make Markets Work*. New York, NY: Oxford University Press, 2018.
    ii. "Chapter 1 - Introduction: More than Mere Deadweight" in Posch, Konrad Edward Ian. 2023. "More than Mere Deadweight: The Variety of Regulatory Imaginaries That Shape How Regulators, Innovators, and Entrepreneurs Coproduce Disruptive Technological Innovation." Ph.D. Dissertation, United States -- California: University of California, Berkeley. Link.
    iii. "Chapter 2 - A Genealogy of Disruptive Innovation and Regulatory Imaginaries: How Disruptive Technological Innovation Cast Regulation as a Villain" in Posch, Konrad Edward Ian. 2023. "More than Mere Deadweight: The Variety of Regulatory Imaginaries That Shape How Regulators, Innovators, and Entrepreneurs Coproduce Disruptive

Technological Innovation." Ph.D. Dissertation, United States -- California: University of California, Berkeley. Link.

c. Optional Readings
   i. The rest of the Vogel book is an excellent overview of economic regulation.

Week 8: (March 31) Social Regulation

a. Like each of the technological revolutions before it, AI will change what it means to work and live. What are the implications of regulation of AI and regulation by AI? How will AI change work, lives, and society? What can/should/will we do about this? What have we done already?
   i. Note: This week and next week, we adopt the useful if problematic distinction between ECONOMIC regulation (the rules that make markets work) and SOCIAL regulation (the rules that protect people from social harms…. Often caused by markets….so that markets can work). This is a **useful analytic distinction but not a fundamental truth** of the universe; economic regulations exist to promote certain social goods and social regulations exist to make markets possible.
b. Required Readings
   i. Kleinberg, Jon, Jens Ludwig, Sendhil Mullainathan, and Cass R Sunstein. 2018. "Discrimination in the Age of Algorithms." *Journal of Legal Analysis* 10 (December): 113–74. Link.
   ii. Burrell, Jenna, and Marion Fourcade. 2021. "The Society of Algorithms." *Annual Review of Sociology* 47 (1): 213–37. Link.
   iii. Rambachan, Ashesh, Jon Kleinberg, Jens Ludwig, and Sendhil Mullainathan. 2020. "An Economic Perspective on Algorithmic Fairness." *AEA Papers and Proceedings* 110 (May): 91–95. https://doi.org/10.1257/pandp.20201036.
c. Optional Readings
   i. Öjehag-Pettersson, Andreas, Vanja Carlssson, and Malin Rönnblom. 2023. "Political Studies of Automated Governing: A Bird's Eye (Re)View." *Regulation & Governance* n/a (n/a). https://doi.org/10.1111/rego.12569.
   ii. Browse the Special Issue of *Regulation & Governance* on "Algorithmic Regulation" link to special issue.
      - The introductory reading is a good way to dip your toe in: Ulbricht, Lena, and Karen Yeung. 2022. "Algorithmic Regulation: A Maturing Concept for Investigating Regulation of and through Algorithms." *Regulation & Governance* 16 (1): 3–22. https://doi.org/10.1111/rego.12437.

Week 9: (April 7) Hardware and Physical Dimensions

a. The "magic" of AI may be the software, but it must run on hardware and generally quite a lot of expensive and energy-intensive hardware with serious implications for entrepreneurial access and ownership. How does this affect the uses, implementation, and impacts of AI technology? How might we develop AI technology and industries to create better or worse social and economic impacts?
b. Required Readings

i. Alloway, Tracy, and Joe Weisenthal (May 8, 2023). “Inside the Battle for Chips That Will Power Artificial Intelligence.” Odd Lots. Paywalled Official Link PocketCast Free Link Youtube Free Link
ii. Dave, Paresh (August 23, 2024). "Nvidia Chip Shortages Leave AI Startups Scrambling for Computing Power." Wired. Link.
iii. Patel, Dylan and Daniel Nishball (August 27, 2023). "Google Gemini Eats The World – Gemini Smashes GPT-4 By 5X, The GPU-Poors." SemiAnalysis Blog. Link. *Note: only read sections prior to the paywall.*

c. Optional Readings
i. none

Week 10: (April 14) Climate Change

a. Aside from the very real economic and social impacts of the hardware of AI, the energy-intensive aspects of that same hardware have serious implications for climate change. How does this affect the uses, implementation, and impacts of AI technology? How might we develop AI technology and industries to create better ecological impacts and maybe even to create a less carbon dependent world?
b. Required Readings
i. Cowls, Josh, Andreas Tsamados, Mariarosaria Taddeo, and Luciano Floridi. 2023. “The AI Gambit: Leveraging Artificial Intelligence to Combat Climate Change—Opportunities, Challenges, and Recommendations.” *AI & SOCIETY* 38 (1): 283–307. link.
ii. Wu, Carole-Jean et al (January 9, 2022). "Sustainable AI: Environment Implications, Challenges and Opportunities." Link.
iii. Sundberg, Niklas. 2024. “Tackling AI’s Climate Change Problem.” *MITSloan Management Review* 65 (2): 38–41.
c. Optional Readings
i. none

Week 11: (April 21) Existential Risk

a. Certain tech entrepreneurs are concerned that AI represents an existential threat to humanity in the vein of Skynet from the movie *Terminator 2: Judgement Day* or at least in the vein of *Westworld*. After all we have discussed and read this semester on the underlying technology (capabilities and limitations), the social and economic impacts (good and ill), and the history of technological change over the last decades, centuries, and millennia what do we think? Is AI truly an existential threat? If so, how so? Why is this different from everything that’s ever happened before? Or is it not? And what should we do about all this?
b. Required Readings
i. “Chapter 11: Engines of Destruction” in Drexler, K. Eric. 1986. *Engines of Creation*. Anchor Press/Doubleday.
ii. Johnson, Deborah G., and Mario Verdicchio. 2017. “AI Anxiety.” *Journal of the Association for Information Science and Technology* 68 (9): 2267–70. link.

iii. Müller, Vincent C., and Michael Cannon. 2022. "Existential Risk from AI and Orthogonality: Can We Have It Both Ways?" *Ratio* 35 (1): 25–36. https://doi.org/10.1111/rati.12320. ***(Note: this was written by two Philosophy Professors and then published in a peer reviewed academic journal)***

iv. Carlsmith, Joseph. 2022. "Is Power-Seeking AI an Existential Risk?" arXiv.Org. June 16, 2022. https://arxiv.org/abs/2206.13353v1. ***(Note: this was written by a PhD Candidate in Philosophy who works for an NGO and then self-published on a website archive)***

v. Cunningham, Tom. "An AI Which Imitates Humans Can Beat Humans." October 6, 2023. Link.

c. Optional Readings

i. Bowman, Samuel (April 2, 2023). "Eight Things to Know about Large Language Models." arXiv. Link.

Week 12 (April 28) Graduate Student Presentations on Course Takeaways

a. Since AI and its economic implications are very new, one of the most useful things we can do in this class is see where we, as a group and individually, stand after spending the past 10 weeks engaging critically with many different perspectives on the topic. To that end, our graduate student members of the course will each select what they believe is a key takeaway from the course and prepare a 15 minute presentation on how they believe we (and they) understand that take away.

b. Note: We will spend the last 15 minutes of the previous class (April 21) listing our key takeaways. This will form the list which graduate students will select a topic from.

c. There will be 5 presentations on April 28th. If we need more time, we will roll over additional presentations to next week. The order of presentations will be assigned randomly to graduate students on April 21st.

d. There will be no required readings, reaction papers, or discussion leaders for this week. Undergraduate students are required to attend and expected to ask questions of the presenters.

Week 13 (May 5) Conclusion

If we have more than 5 graduate students, additional presentations will take place on this day

a. The instructors will provide their conclusions from the course on the subject of the economics of AI.

b. There are no required readings, reaction papers, or discussion leaders for this week.

c. All students are expected to attend this final class. We will discuss our takeaways from last week (Graduate Student's Presentations) as well as this week (Instructor's conclusions).

Additional Course Policies

Usage of ChatGPT and other AI Assistants

The usage of ChatGPT and other AI assistants in writing reaction papers is ***permitted***. **However**, you remain fully responsible for being able to explain any written argument orally in class. In addition, you should ensure the accuracy of your submitted materials, as ChatGPT is known to make up citations and facts.

If you do choose to use AI to help with your reaction papers, you must explain how you used it, what it contributed, and how that helped you draw your conclusions. At a minimum, this requires you to cite whatever the AI wrote (e.g. link to the ChatGPT conversation) in your paper AND to explain in your own words how this helped you to understand the course material. It's also a GREAT idea to explain how you got ChatGPT to give you the output you found useful.

Most critically, all your written assignments must be grounded firmly in course material. While you should absolutely experiment with how ChatGPT can help you to form deeper insights, do not allow it to replace your own engagement with the material and **certainly** do not submit a paper written "blindly" by ChatGPT which fails to engage with the assigned readings and hallucinates similar (but non-existent or lower quality) citations.

Unthinking use of ChatGPT to replace your own thinking (rather than elevate or enhance it) will result in an unsatisfactory grade for that assignment. Repeated unthinking and improperly documented use will make it impossible for you to pass the class and may lead to a report to Academic Integrity for further disciplinary action.

You CAN use AI, you need to use it thoughtfully and transparently. You have been warned.

Program Learning Outcomes

This course is a component of the MS in Applied Economics. It will contribute to the following program learning outcomes:

PLO-3 Applied Economic Theory: Students will be able to understand and apply economic theory to understand how businesses and other organizations interact with each other and with users/customers/clients and use this understanding to guide data analysis.

PLO-4 Economic Problem Solving: Students will be able to solve real-world data-driven business and policy problems working with economists, policy makers, data scientists and business practitioners.

PLO-5 Economic Communication: Students will be able to communicate their research approach and findings at an excellent level, both in writing and verbally.

University-wide Policies and Legal Declarations

Communication

All course communications, like all other USF communications, will be sent to your USF official email address. You are therefore strongly encouraged to monitor that email account.

Studies with Disabilities

The University of San Francisco is committed to providing equal access to students with disabilities. If you are a student with a disability, or if you think you may have a disability, please contact Student Disability Services (SDS) at sds@usfca.edu or 415 422-2613, to speak with a disability specialist. (All communication with SDS is private and confidential.) If you are eligible for accommodations, please request that your accommodation letter be sent to me as soon as possible; students are encouraged to contact SDS at the beginning of the semester, as accommodations are not retroactive. Once I have been notified by SDS of your accommodations we can discuss your accommodations and ensure your access to this class or clinical setting. For more information please visit the SDS website: https://www.usfca.edu/student-disability-services.

Behavioral Expectations

All students are expected to behave in accordance with the Student Conduct Code and other University policies (see http://www.usfca.edu/fogcutter/). Students whose behavior is disruptive or who fail to comply with the instructor may be dismissed from the class for the remainder of the class period and may need to meet with the instructor or Dean prior to returning to the next class period. If necessary, referrals may also be made to the Student Conduct process for violations of the Student Conduct Code.

Academic Integrity

As a Jesuit institution committed to cura personalis -- the care and education of the whole person -- USF has an obligation to embody and foster the values of honesty and integrity. USF upholds the standards of honesty and integrity from all members of the academic community. All students are expected to know and adhere to the University's Honor Code. You can find the full text of the code online at http://myusf.usfca.edu/academic-integrity/. The policy covers:

- Plagiarism — intentionally or unintentionally representing the words or ideas of another person as your own; failure to properly cite references; manufacturing references.
- Working with another person when independent work is required.
- Submission of the same paper in more than one course without the specific permission of each instructor.
- Submitting a paper written by another person or obtained from the Internet.
- Using ChatGPT or other generative AI services EXCEPT as described above in the ChatGPT section of this syllabus

Counseling and Psychological Services (CAPS)

CAPS' diverse staff offers brief individual, couple, and group counseling to student members of our community. CAPS services are confidential and free of charge. Call (415) 422-6352 for an initial consultation appointment. Telephone consultation through CAPS After Hours is available Monday - Friday from 5:00 p.m. to 8:30 a.m., 24 hours during weekends and holidays; call the above number and press 2. Further information can be found at https://myusf.usfca.edu/student-health-safety/caps.

Confidentiality, Mandatory Reporting, and Sexual Assault

As instructors, one of our responsibilities is to help create a safe learning environment on our campus. We also have a mandatory reporting responsibility related to our role as faculty. We are required to share information regarding sexual misconduct or information about a crime that may have occurred on USF's campus with the University. Here are some useful resources related to sexual misconduct:

- To report any sexual misconduct, students may visit the Title IX coordinator (UC 5th floor) or see many other options by visiting usfca.edu/student_life/safer.
- Students may speak to someone confidentially or report a sexual assault confidentially by contacting Counseling and Psychological Services at (415) 422-6352.
- To find out more about reporting a sexual assault at USF, visit USFs Callisto website at: usfca.callistocampus.org.
- For an off-campus resource, contact San Francisco Women Against Rape (SFWAR) (415) 647-7273 (sfwar.org).