

DRAFT VERSION (Oct. 2017)

Artificial Intelligence, Automation and the Economy (180.370)

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Trigger warning: This course may permanently change how you think about what it means to be human.

Course description:

Advances in artificial intelligence and automation have proceeded rapidly in recent years and have reached an inflection point that will have profound implications for the future of mankind.

How does rapid progress in artificial intelligence and automation affect our economy and society? This course analyzes the short- and medium-run implications for unemployment, economic growth, and inequality. It also studies the long-run implications of artificial intelligence rivaling human intelligence.

Tentative course outline:

Part 1 (Weeks 1 – 3): What is Intelligence?

- What is Intelligence? What is AI?
- What makes us humans special? For how long will we be special?
Group exercise: take contrarian view of your own beliefs about what makes humans special and argue it forcefully:
 - is it emotions?
 - is it creativity?
 - is it spirituality?
- What is the role of intelligence in evolution?
- Recent Trends
- Singularity & potential scenarios for the future
- What are we to do?

Part 2 (Weeks 4 & 5): Implications for macroeconomics, labor markets & inequality

Guest speaker: Andy Berg, PhD

- Rapid economic growth
- Effects on labor markets and inequality:
 - worker-replacing technological progress
 - skill premium
 - What are we to do?
- Digitization and the superstar phenomenon
- Broader perspective: which are the scarce factors?
- Are these changes economically efficient?
- What are we to do?

Student group presentations (Week 6 & 7): Sectors revolutionized by AI:

Pick a sector and provide us with an overview, for example:

- Financial markets (algorithmic trading, ...)
- Transportation (driverless cars, ...)
- Medicine
- Education
- ...
- [pick your own, subject to my approval]

Inequality, Redistribution and Subsistence Income (Week 8):

- redistributive policies to replace income
- broader issues: deriving meaning & dignity from work
- subsistence income
- the return of Malthus
- What are we to do?

Artificial Intelligence, the Human Brain, and Consciousness (Week 9):

Guest speaker: Sister Ilia Delio, OSF, PhD

- effects of AI on our brains and minds
- from homo sapiens to techno sapiens
- AI and the nature of consciousness

The Future of Humanity and Artificial Intelligence (Weeks 10 – 12):

- Scarcity of resources
- Role of competition in evolution
- Life 3.0
- What are we to do?

Conclusions (Week 13): What are we to do?

- Preparing for the Age of AI

Reading List:

Articles:

Autor, David (2014), "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," *Journal of Economic Perspectives* 29(3), pp. 3-30.

Berg, Andrew, Edward F. Buffie, and Luis-Felipe Zanna (2017), "Robots, Growth, and Inequality: Should We Fear the Robot Revolution? (The Correct Answer is Yes)," forthcoming, *IMF Working Paper*.

Freeman, Richard B. (2015), "Who Owns the Robots Rules the World," IZA World of Labor.

(*)Frey, Carl Benedikt, and Michael A. Osborne (2013), "The Future of Employment: How Susceptible Are Jobs to Computerisation?" Oxford University paper.

Keynes, John Maynard (1930), "Economic Possibilities for our Grandchildren," in *Essays in Persuasion*, Harcourt Brace, pp. 358-373.

(*)Alan M. Turing (1950), "Computing Machinery and Intelligence," *Mind* 59(236), pp. 433-460.

Books:

(*) Barrat, James (2013), *Our Final Invention: Artificial Intelligence and the End of the Human Era*, Thomas Dunne Books.

(*)Bostrom, Nick (2014), *Superintelligence: Paths, Dangers, Strategies*, Oxford University Press.

(*)Brynjolfsson, Erik and Andrew McAfee (2015), [*The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*](#), W.W. Norton.

Chace, Calum (2016), *The Economic Singularity: Artificial intelligence and the death of capitalism*, Three Cs.

Domingos, Pedro (2015), *The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World*, Basic Books.

Gordon, Robert (2016), *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*, Princeton University Press.

Ford, Martin (2015), [*Rise of the Robots: Technology and the Threat of a Jobless Future*](#), Basic Books.

Harari, Yuval Noah (2017), *Homo Deus: A Brief History of Tomorrow*, Harper.

Kaplan, Jerry (2015), *Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence*, Yale University Press.

Kurzweil, Ray (2005), *The Singularity Is Near: When Humans Transcend Biology*, Viking.

Moravec, Hans (1988), *Mind Children: The Future of Robot and Human Intelligence*, Harvard University Press.

(*)Tegmark, Max (2017), *Life 3.0: Being Human in the Age of Artificial Intelligence*, Knopf.