

## PRELIMINARY

**Artificial Intelligence and the Future of Work ... and of Humanity**  
**Anton Korinek, UVA Economics and Darden GSB**

**Spring 2019**

*Personal note: I am offering this course because I believe that artificial intelligence will change our world more profoundly than we can imagine in coming decades. This course invites you to join me on a journey from our evolutionary origins to present technological disruptions and their effects on the economy towards the future of life in our universe.*

**Course webpage:** [in preparation]

**Lecture:** Tue and Thu 12:30 – 1:45pm in Ruffner Hall 179

**Office hours:** Thu 2:30 – 3:30pm

**Teaching Assistant:** [to be determined]

**TA office hours:** [to be determined]

### **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 humanity.

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

**Learning goals:** At the conclusion of this course, you will be able to:

- assess the implications of the rise of AI for humanity
- evaluate how different sectors of the economy will be affected by automation
- demonstrate your understanding in an in-depth course paper on a specific topic in the field
- devise a plan for how to effectively manage your career and life in the age of AI

### **Grade composition (preliminary):**

24 % Class preparation and participation

20 % Problem sets

20% Mid-term quizzes

21% Course paper

15 % Course presentations

### **Class Preparation, Attendance, and Participation:**

Class participation is an essential part of your learning experience. Each week, I will assign preparatory readings that we will discuss in the following week. Preparing these materials will help you to actively and effectively participate in classroom discussions.

### **Policy on Use of Electronics:**

The use of electronics in the classroom is highly discouraged, and laptops are forbidden because they interfere with effective learning (see <https://nyti.ms/2hVMrVo>). If you need to use your smartphone, please step outside the classroom – you are welcome to do so for urgent matters and do not need to excuse yourself.

## **Tentative course outline:**

### Week 1: Introduction:

- Syllabus and course requirements
- Summary of course topics
- Asking the big questions: Will AI/robots take our jobs? Will they replace humanity? What can we do about it?

### Week 2: Evolution and intelligence

- What is intelligence? What is AI?
- What makes us humans special? For how long will we be special?
- Evolutionary benefits (and costs) of intelligence
- Evolution of intelligence

### Week 3: Artificial intelligence - a non-technical primer

- History of AI: intelligent design of intelligence
- Recent developments
- Scenarios for the near future
- Potential scenarios for the far future: intelligence explosion

### Week 4: History of automation, job creation and destruction

- Before the industrial revolution: the reign of Malthus
- The Industrial revolution: technological progress and automation
- Labor market developments in recent decades
- Digitization and the superstar phenomenon
- Will robots/AI take [all?] our jobs?

### Week 5: Technological unemployment

- An economist's perspective on "technological unemployment"
- Deriving meaning & dignity from work
- Broader perspective: which are the scarce factors?
- What can we do about it?

### Week 6: Technological change and inequality

- How technological change affects inequality
- Political feedback loops that further exacerbate inequality
- Policies to fight inequality: redistribution versus pre-distribution
- Subsistence income
- The return of Malthus
- What can we do about inequality?
- Or are concerns about inequality outdated?

### Week 7 & 8: Group Presentations: Sectors and Areas 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]

#### Week 9: Biology beyond humans

- history of enhancing intelligence
- engineering better humans
- genetics
- homo deus versus the useless?
- the future of life

#### Week 10: Is human exceptionalism a myth?

- empathy
- creativity
- consciousness
- meaning
- spirituality

#### Week 11: Scenarios for superintelligence and role for humanity

- enhanced humans
- whole brain simulation
- brain-computer interfaces
- artificial superintelligence
- Outcomes: existential catastrophe or eternal life?

#### Weeks 12 and 13: Goals

- final goals and instrumental goals
- biological evolution and human goals
- cultural evolution and human goals
- What are your goals?
- AI goals
- the control problem – an agency perspective
- What can we do about it?

#### Week 14: Preparing for the Age of AI: philosophy with a deadline

- Why this is the most exciting time to be alive in history
- Reaping short-term gains from AI
- The bigger picture and the future of life
- What can you do?

#### Week 15: Conclusion