

Economics 318W  
Economics of Technology and Innovation  
Fall 2021  
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Office Hours: M 3-5:00, W 2-4:00 & by apt.

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## 1. General Information

This is a course on the economics of technology and innovation. The prerequisites are two semesters of introductory economics (Econ 100 and 166 or Econ 101 and 102). The course will selectively cover history, theory, and contemporary trends and policy issues associated with technological change.

We will read two books as well as a variety of articles and tap other sources such as blogs and podcasts. The books that I expect to read parts or all of are:

**Brynjolfsson**, Erik., and **McAfee**, Andrew. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*

**Mokyr**, Joel, *The Lever of Riches* (also available through the library as an ebook)

The other readings and electronic sources will be posted on Blackboard.

## 2. Grades

- Four short (2-3 page) papers, worth 30% of your grade.
- Midterm Exam: Thursday, October 21 in class, worth 25% of your grade.
- Final Exam Essays and Project Paper, Due by Thursday, December 16, at 5:00pm, worth 25% of your grade.
- Class participation and presentations, worth 20% of your grade.

You are required to take the midterm examination at the time listed above and turn in the final exam essays and project paper no later than the time listed above. If you believe that you have a legitimate scheduling conflict with the midterm date, you must see me during the first two weeks of class to see if it can be resolved. The short papers will be assigned one week in advance of their due dates. I aim to be fair but not flexible about due dates, and I generally do not accept late assignments or reschedule exams.

I expect you to attend classes and to be prepared to participate in class. In the event that any students are quarantined and can not attend in person, I will arrange for Zoom access for those students. The class participation grade will be based primarily on attendance, participation in class discussions and activities, and a news presentation (see below). You can also participate by contributing to the course blog on Blackboard. The blog provides an opportunity to ask questions and share links to coverage of current events or other material that you think is relevant to the course.

## 3. Writing:

This course is Writing-Intensive (WI). Because learning to write well is an on-going process, the faculty has committed to a WI Program that will assist students in learning to write well in multiple disciplines and throughout their time at Hamilton.

We will devote part of our class time to talking about writing and doing in-class edits of written work. You may revise (any) two of the four short papers. Revisions must be turned in within one week of the day that I return the paper and must be accompanied by a memo detailing the specific ways in which you have improved your paper. The grade for that paper will then be 50% of the original grade plus 50% of the new grade. You will not have an opportunity to revise the take home final exam essays or final project paper. See below for more information on the writing assignments.

#### 4. Office Hours

My office hours are posted above. Please feel free to schedule appointments with me outside of these hours by emailing or calling me at x4472 or catching me after class. I expect to hold my office hours by Zoom, at least for starters this semester (see Blackboard for Zoom links).

#### 5. Outside Speakers

I am in the process of scheduling several (between 2 and 4) outside speakers during the semester. I currently expect that these sessions will be held in person or via Zoom during evening hours.

### Tentative Schedule of Topics and Readings

#### I. Introduction

Aug 26: Podcasts and Videos on Technology and Jobs, Fake News, Vaccines, Antitrust, and Wikipedia

- Planet Money: This is the End
- PBS Newshour: The Robots are Coming: Will They Work With Us?
- NYT Opinion: Wardle: This Video May Not Be Real
- Planet Money: Why the Market for Emergency Vaccines is Like No Other
- CNBC: Facebook Seeks Recusal of FTC Chair Lina Khan
- How I Built This: Wikipedia, Jimmy Wales

#### II. Progress, Problems, and Policy in the “Second Machine Age”

Aug 31:

- Brynjolfsson and McAfee: Ch 1-2
- Ted Talk: Gordon (video)

Sept 2:

- Brynjolfsson and McAfee: Ch 3-8
- Nature: The Computer that Mastered Go (video)
- Tapson: Google’s Go Victory (blog)
- DeepMind: AlphaZero (blog)

Sept 7:

- Brynjolfsson and McAfee: Ch 9-12
- Brynjolfsson and McAfee (2017): Ch. 2
- Planet Money: Container Shipping (audio podcast)

Sept 9:

- Brynjolfsson and McAfee: Ch 13-15

### III. More on Growth, Jobs, and Inequality

Sept 14:

- Georges: Intro to Economic Growth (video)
- Fernald and Wang: The Recent Rise and Fall of Rapid Productivity Growth
- Gordon: Does the 'New Economy' Measure Up to the Great Inventions of the Past? pp. 57–60

Sept 16:

- Clark: Winter Is Coming: Robert Gordon and the Future of Economic Growth
- Syversson: Challenges to Mismeasurement Explanations (intro)
- Pratt: Is a Cambrian Explosion Coming for Robotics?
- Freakonomics: Are We Running Out of Ideas? (audio podcast)

Sept 28,30, Oct 5:

- Autor: Why Are There Still So Many Jobs? The History and Future of Workplace Automation
- Autor, Goldin and Katz: Extending the Race
- Brynjolfsson, Mitchell and Rock: What Can Machines Learn and What Does It Mean for Occupations and the Economy?
- Agarwal, Gans, and Goldfarb: Artificial Intelligence: The Ambiguous Labor Market Impact of Automating Prediction
- Planet Money: When Women Stopped Coding (audio podcast)
- NPR: The Forgotten Female Programmers Who Created Modern Tech (audio)
- Alvarado, Atkinson, Piketty, and Saez: The Top 1 Percent in International and Historical Perspective

### IV. More on Micro Theory, Antitrust and Regulation

Sept 28,30, Oct 5:

- Georges: Micro Refresher (two videos)
- Varian: The Economics of IT
- Georges: Some Micro Theory of Information Goods (two videos)
- Phillippon: The Great Reversal, Chapters 13-14.

Oct 7,12,19:

- Economist: The Superstar Company - A Giant Problem
- Lamoreaux: The Problem of Bigness, From Standard Oil to Google
- Varian: Seven Deadly Sins of Tech?
- Freakonomics: Is the Internet Being Ruined? (audio podcast)
- Economist: What if People Were Paid for Their Data?
- NYT: Madsbjerg: It's Time to Tax Companies for Using Our Personal Data

FALL BREAK

MIDTERM EXAM: Thursday, October 21, in class

## V. History

Oct 26:

- Mokyr Ch. 1-3

Oct 28:

- Mokyr Ch. 4-5

Nov 2,4:

- Mokyr Ch. 6-7

Nov 9,11:

- Nelson and Wright: The Rise and Fall of American Technological Leadership: The Postwar Era in Historical Perspective
- Madison: Changes in Economic Leadership
- Wei et al.: From “Made in China” to “Innovated in China”
- Lee: The U.S. is Hastening Its Decline in AI

## VI. More on Innovation

Nov 16:

- Planet Money: Self Checkout
- Smith: Innovation Doesn't Always Start in the Garage (blog)
- Kerr, Nanda and Rhodes-Kropf: Entrepreneurship as Experimentation

Nov 18,30, Dec 2

- Lerner and Nanda: Venture Capital's Role in Financing Innovation
- Bloomberg: VC Shuns Vaccines
- New Yorker: The Case for Vaccine Bonds
- Chang: Brotopia Ch. 5
- How I Built This: AirBnB (audio podcast)

Dec 7,9:

- Van Reenan: Innovation Needs Innovators (video)
- Boldrin and Levine: The Case Against Patents
- Planet Money: The Muscle Patents (audio podcast)
- Georges and Pereira: Market Stability with Machine Learning Agents

## V. Conclusion

Dec 9: Conclusion

Final Exam Essays and Project Paper due by 5:00pm on Thursday, December 16

### **News Presentations:**

You will each give at least one brief news presentation at the beginning of a class, likely jointly with another student. The topic should be a recent news item related to the course or some other issue relevant to the course. You should collaborate with your partner on a single topic to present and divide the presentation between yourselves. The total presentation should last no more than 5 minutes, so you each have at most two-three minutes to speak. After the presentation, you will have a few minutes to field questions from the rest of the class or to raise your own questions.

The presenters should (jointly) send an email to the rest of the class (using the email list in Blackboard - please send to “all users” so that I receive these as well) with a short written summary (a few paragraphs) of their presentation and a few sources for the class to look at in advance no later than 7:00 PM the evening before the presentation.

In researching its topic, each team should seek out more than one type of information. For example, if you find an interesting topic in a news article from the New York Times, look for a statement from a relevant government agency or think tank or scholarly article that will answer questions that you had about the coverage in the Times.

### **Leading Discussions:**

You may occasionally be asked to lead discussion on a reading, either individually or in a small team. As with the news presentations, a major goal here is parsimony. What were the central issues covered or arguments made in the reading? Are these interesting? What questions do you still have about these arguments? Do NOT try to go blow by blow through the reading – curate it for the others in as simple and brief a manner as you can.

### **Guidelines for the Four Short Papers**

I will distribute topics for these four short writing assignments at least one week in advance of their due dates on Blackboard, and you should post your paper (double spaced, standard fonts and margins) to Blackboard in PDF format. Due dates will be listed on each assignment, and late assignments will receive a grade of zero.

Please feel free to discuss these paper topics with other students in the course. You must, however, compose your papers independently. This means that you may not write your papers with any one else, and you must not show them (in either draft or final form) to any one else in the class.

Your grade on each writing assignment will be based on your understanding of the relevant economic concepts and theories, your ability to express your understanding, and the quality of your writing. I will reward prose that is clear, concise, and well-organized; I will penalize writing errors, poor organization, and lack of clarity.

**Format:** The writing assignments must be typed and double-spaced (with standard margins and type sizes) and posted to Blackboard in PDF format.

**Length:** The maximum length of each paper will be specified in the assignment and is binding.

**Quotations:** Avoid them; they rarely help to express *your* understanding of the material.

**References:** If you wish to cite a source from the reading list, simply provide a short parenthetical citation within the text. E.g., (B&M, p. 45) or (Mokyr, p. 56). If you cite a source that is not on the reading list, insert a parenthetical citation of the form (Author's last name, year) within the text *and* provide a complete bibliographic citation at the end of the paper (not included in the maximum page length). If in doubt about citation details, you can use APA style.

**Revisions:** You will be able to revise (any) two of the four short papers. Revisions must be turned in within one week of the day that I return the paper and must be accompanied by a memo detailing the specific ways in which you have improved your paper. The grade for that paper will then be 50% of the original grade plus 50% of the new grade.

We will spend some of our class time collectively analyzing anonymous writing samples from the four short papers.

### **Short Research Projects**

For the short research project, you will select an issue or case related to technology and innovation that you would like to research. There will be separate deadlines for a one page proposal and for the final paper (5 pages). In the final paper, you will pose your research question and provide a critical review of our economic knowledge pertaining to this question.