

Econ 1000a and Econ 1000b

Growth, Technology, Inequality, and Education

Professors James Engell, Benjamin M. Friedman, and others

Teaching fellows: Joan Chaker (1000a) and Ben Sudarsky (1000b)

Tuesdays and Thursdays, 1:00-2:30, Emerson 108

1000b section: Fridays, 2:00-3:00, Barker 222

1000a section 1: Thursdays, 3:00-4:00, Boylston G02

1000a section 2: Fridays, 1:00-2:00, Barker 103

Course Information

An economist and a humanist, together with other professors from the natural and social sciences, analyze conceptual and policy-relevant issues from viewpoints of their respective disciplines. For example, how do we measure inequality, and at what point does it become problematic (and how do we know)? How then should it be addressed (e.g., tax code, minimum wage)? What role does, and can, education play? What are the best policies to confront job losses from technology? What does “sustainable growth” mean? The goal is not merely to examine four intertwined issues “growth, technology, inequality, and education” but also to understand the distinct concerns and methods of the humanities, social sciences, and natural sciences. The course seeks to impart knowledge and to explore different modes of thinking, yet it also challenges everyone in the course, instructors included, to consider what we do not know, as well as how we might best formulate action for the problems that we identify.

Economics 1000a (intended for Economics concentrators, or probable concentrators) and Economics 1000b (intended for non-Economics concentrators) meet together for lectures “fostering discussion among those with different points of view grounded in different disciplines is what the course is all about” but separately for sections. Some assignments, and some questions on the final examination, differ between the two sub-courses; others are in common. The readings are in common.

General Education and Concentration Credit: Students who take Economics 1000a will receive General Education credit for Empirical and Mathematical Reasoning. Students who take Economics 1000b will receive GenEd credit for either Societies of the World (SW) *or*, at the student’s choice, for United States and the World (USW). Economics 1000a qualifies for concentration credit in Economics; Economics 1000b does not. Both Economics 1000a and Economics 1000b qualify for concentration credit in English. Professors Friedman and Engell will apply to have Economics 1000a and b count toward the new General Education requirements.

Prerequisite: For Economics 1000a: Economics 10a

For Economics 1000b: None

Course size: The course will be limited to 75 students, with two sections of Economics 1000a and two of Economics 1000b. If needed, a course lottery will take place after the second class meeting (Tuesday, September 5).

Sections: Attendance at section meetings and participation in section discussions are required elements of the course and play a role in determining final grades. Sectioning will take place at the beginning of the second week of classes, using the on-line sectioning tool. Sections will meet for the first time that week.

Assignments:

- Four short (3-5 page) papers, *or* problem sets, *or* statistical exercises “one based on each of the four main topics covered in the course, due **September 22, October 13, November 10 and December 1 (all Fridays)**
- In-class mid-term exam, based on material covering the course introduction and the first two topics (Growth and Technology): **Thursday, October 19**
- Final examination: date to be set by the Registrar

For purposes of evaluating overall course performance, each of the four short papers/problems sets/statistical exercises will represent 10% of a student’s grade, the midterm assignment 15%, and the final exam 35%, with an additional 10% based on attendance and contribution in sections.

Academic Integrity: Discussing ideas and work-in-progress with others is a natural and healthy part of the intellectual process. It is what professors do, it is what researchers do, and it is both expected and desirable that students do so as well. But in the end assigned student work in this course must be an individual effort, written

or performed by the student and based on individual thinking and judgment. Discussing ideas with others is certainly not prohibited. Turning in someone else's work certainly is. *You must ensure that work you submit is the result of your own judgment in research and your own writing or calculation, and that it reflects your own approach to the topic. Work that seems to lack proper citations or work that appears copied from other submissions or external sources will be investigated.*

Readings: In order to facilitate discussion, students are expected to complete the designated readings for each lecture or section meeting. The readings for each week are listed on the syllabus in the order in which it makes the most sense to read them. Films will be available to view and, depending on schedules and probable attendance, there may be screenings.

All readings for the course will be available online or in PDF form on the course website. There is no course pack for the course, and students are not required to purchase any books. It will be recommended that students bring a printed version of certain texts to lecture or section.

Office Hours: We hope students will feel free, throughout the term, to visit during office hours or to make additional appointments if office hours are insufficient. Our office hours:

Engell: Tuesdays and Thursdays, 2:45-3:45, and by appointment, Barker 272

Friedman: Mondays, 4:00-5:30 (Wednesday, 4:00-5:30 in weeks when Monday is not available), and by appointment, Littauer 127

Sudarsky: Fridays, 3:00-4:30, Art Museum Cafe

Chaker: Fridays, 2:00-3:30, Barker Cafe

Please remember that one-on-one conversation is an important part of the learning process – for both students and professors.

James Engell Barker Center 272 jengell@fas.harvard.edu	Benjamin M. Friedman Littauer Center 127 bfriedman@harvard.edu
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Joan Chaker joanechaker@g.harvard.edu	Ben Sudarsky sudarsky@fas.harvard.edu
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Reading List and Lecture Schedule

Course Introduction

August 31 (Th) Outline of this Course

Modes of thought of economists and humanists (Engell, Friedman)

- Immanuel Kant, "What Does It Mean to Orient One's Self in Thinking?" (1786), as quoted and discussed by Thomas Pfau in *Romantic Moods* [pdf].
- Gerald Holton, "What, Precisely, Is Thinking?" . . . Einstein's Answer (1995) [pdf].
- Essay on education by Edward O. Wilson, in *Essays on General Education in Harvard College* (2004) [pdf].
- Charles Goodhart, review of *Adaptive Markets: Financial Evolution at the Speed of Thought*, by Andrew Lo (2017) [pdf].

1. Growth

September 5 (Tu) Growth as seen by an economist (Friedman)

September 7 (Th) Growth as seen by an economist (Friedman)

- Angus Deaton, *The Great Escape* (2013), Introduction and Ch. 1, 6 [pdf].
- Richard Easterlin, "Does Economic Growth Improve the Human Lot?" (1973): <http://graphics8.nytimes.com/images/2008/04/16/business/Easterlin1974.pdf>
- David Sacks, Betsy Stevenson and Justin Wolfers, "The New Stylized Facts About Income and Subjective Well-Being" (2012): [http://users.nber.org/~jwolfers/papers/NewStylizedFacts\(Emotion\).pdf](http://users.nber.org/~jwolfers/papers/NewStylizedFacts(Emotion).pdf)
- Robert Gordon, "Declining American Economic Growth Despite Ongoing Innovation" (2017) [pdf].
- Fred Hirsch, *Social Limits to Growth* (1976), Ch. 1, 3 [pdf].
- Gene Grossman and Alan Krueger, "Economic Growth and the Environment" (1995):

<http://www.jstor.org/stable/2118443>

- Robert Solow, "Sustainability: An Economist's Perspective" (1993) [[pdf](#)].
- A.M.C. Waterman, "Pope Francis on the Environmental Crisis" (2017): <https://amcwaterman.files.wordpress.com/2017/02/pope-francis-on-the-environmental-crisis.pdf>
- See animated presentation, "200 Years That Changed the World": <http://www.gapminder.org/videos/200-years-that-changed-the-world/>

[In-Class Powerpoint Presentation [Slides](#)]

September 12 (Tu) Growth as seen by a natural scientist (David Keith, SEAS)

- Kerry Emanuel, *What We Know About Climate Change* (2nd ed., 2012, MIT Press), chapters 1-5 and pp. 68-71 [[pdf](#)].
- David W. Keith, "Toward a Responsible Solar Geoengineering Research Program," *Issues in Science and Technology* (Spring 2017): <http://issues.org/33-3/toward-a-responsible-solar-geoengineering-research-program/>
- Raymond T. Pierrehumbert, "The Trouble with Geoengineers 'Hacking the Planet,'" *Bulletin of the Atomic Scientists* (June 2017): <http://thebulletin.org/trouble-geoengineers-%E2%80%9CChacking-planet%E2%80%9D10858>

[In-Class PowerPoint Presentation [Slides](#)]

September 12 (Tu), 6:30 p.m. Film, *Modern Times* 1936, starring, written, directed, and with music by Charles (Charlie) Chaplin. Also starring Paulette Goddard and Henry Bergman. This film will be discussed September 14 and should be viewed before that class.

September 14 (Th) Growth as seen by a humanist and environmentalist (Engell)

- Henry David Thoreau, from *Walden, or, Life in the Woods* (1854), chapter 1, "Economy": http://gateway.proquest.com.ezp-prod1.hul.harvard.edu/openurl?ctx_ver=Z39.88-2003&xri:pqil:res_ver=0.2&res_id=xri:lion&rft_id=xri:lion:ft:pr:Z001160285:0&rft.accountid=11311
- Benjamin M. Friedman, from *The Moral Consequences of Economic Growth* (2005), 1-18 [[pdf](#)].
- Bruntland Commission, from *Our Common Future* (1987) in *Environment: An Interdisciplinary Anthology*, ed. Adelson, Engell, Ranalli, Van Anglen, 138-44 [[pdf](#)].
- Garritt Hardin, from "The Tragedy of the Commons" in *Scientific American* (1968), in *Environment*, 805-06 [[pdf](#)].
- Herman Daly, from *Beyond Growth: The Economics of Sustainable Development* (1996) in *Environment*, 774-81 [[pdf](#)].
- Bill McKibben, "Do the Math" in *Rolling Stone* (2012): <http://www.rollingstone.com/politics/news/global-warnings-terrifying-new-math-20120719>

September 19 (Tu) Growth as seen by a natural scientist (Naomi Oreskes, History of Science)

Naomi Oreskes and Erik Conway, *The Collapse of Western Civilization: a View from the Future*, available online from Harvard Library through this link: <http://www.universitypressscholarship.com.ezp-prod1.hul.harvard.edu/view/10.7312/columbia/9780231169547.001.0001/upso-9780231169547>

September 21 (Th) Growth as seen by a humanist and environmentalist (Engell)

- Excerpts from the Holy Father Francis, Encyclical Letter, "Laudato Si' or On Care for Our Common Home," May 24, 2015: http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html Please read paragraphs 1-2, 10-26, 48-52, 56-59, 93-95, 101-123, and especially Chapter Four (137-162) and paragraphs 163-232.
- Andrew C. Revkin, "As Pope Francis Meets America, a Climate Science Scholar Offers a Fresh View of the Encyclical," including a short video with Prof. Naomi Oreskes (Harvard, History of Science), New York Times, September 23, 2015: <http://dotearth.blogs.nytimes.com/2015/09/23/as-pope-francis-meets-obama-a-climate-science-scholar-offers-a-fresh-view-of-the-encyclical/>
- excerpt from *Unchained Goddess* (dir. Frank Capra) shown in class: <http://www.youtube.com/watch?v=0lgzz-L7GFg>
- excerpt from *You Can't Take it With You* (dir. Frank Capra) shown in class: https://www.youtube.com/watch?v=KWKHmE8_Mkc
- Jay Lifton, "Becoming Aware of Our Species": http://www.huffingtonpost.com/robert-jay-lifton/becoming-aware-of-our-spe_b_8982294.html

September 22 (Fri) Growth Assignment Due

[Econ1000A [Assignment](#)]

[Econ1000B [Assignment](#)]

2. Technology

September 26 (Tu) Technology as seen by an economist (Friedman)

September 28 (Th) Technology as seen by an economist (Friedman)

- J. M. Keynes, "Economic Possibilities for Our Grandchildren" (1930): <http://www.econ.yale.edu/smith/econ116a/keynes1.pdf>
- Robert J. Gordon, *The Rise and Fall of U.S. Economic Growth* (2016), Ch. 1, 16, 17 [pdf].
- David Cutler and Grant Miller, "The Role of Public Health Improvements in Health Advances: The Twentieth-Century United States" (2005) [pdf].
- Daron Acemoglu and Pascual Restrepo, "The Race Between Machine and Man" (2016), Section I: <https://economics.mit.edu/files/13179>
- David Autor, "Paradox of Abundance" (2015): <https://economics.mit.edu/files/11686>
- Erik Brynjolfsson and Andrew McAfee, *Race Against the Machine* (2011) [pdf].
- David Autor, "Why Are There Still So Many Jobs? The History and Future of Workplace Automation" (2015): <https://www.aeaweb.org/articles.php?doi=10.1257/jep.29.3.3>
- Paul Beaudry, David A. Green and Benjamin M. Sand, "The Declining Fortunes of the Young Since 2000" (2014) [pdf].

[In-Class Powerpoint Presentation [Slides](#)].

October 3 (Tu) Technology as seen by a humanist (Engell)

- William Shakespeare, *The Tempest*, Acts III, IV, and V: <http://shakespeare.mit.edu/tempest/index.html> Please consult a modern printed edition for notes or vocabulary glosses.
- Henry David Thoreau, from *Walden, or, Life in the Woods* (1854), chapter 4, "Sounds": http://gateway.proquest.com.ezp-prod1.hul.harvard.edu/openurl?ctx_ver=Z39.88-2003&xri:pqil:res_ver=0.2&res_id=xri:lion&rft_id=xri:lion:ft:pr:Z001160285:0&rft.accountid=11311
- Olaf Stapledon, from *Last and First Men* (1930 [rpt.]), selection [pdf].
- Jared Diamond, from *Guns, Germs, and Steel: The Fates of Human Societies* (2005), selections [pdf].

October 3 (Tu), 6:30 p.m. Film, *Forbidden Planet* 1956, directed by Fred M. Wilcox, starring Walter Pidgeon, Anne Francis, Leslie Nielsen, screenplay by Cyril Hume based on a story by Irving Block, an adaptation of William Shakespeare's *The Tempest*. This film will be discussed in class and should be viewed before October 12.

[This](#) recent newspaper article indicates that the technological possibilities considered in the film are more realistic today than they must have appeared in 1956: <https://www.nytimes.com/2017/08/27/technology/thought-control-virtual-reality.html?mcubz=1>

October 5 (Th) Technology as seen by a lawyer and natural scientist (Jonathan Zittrain, Law School, SEAS and Kennedy School)

- Jonathan Zittrain on Information Fiduciaries: "Facebook Could Decide an Election Without Anyone Ever Finding Out" (June 2014) [pdf].
- ---, "Netwar": The Unwelcome Militarization of the Internet Has Arrived, *Bulletin of the Atomic Scientists* (August 2017) [pdf].

October 10 (Tu) Technology as seen by a natural scientist (Scott Kuindersma, SEAS)

- "Benefits and Risks of Artificial Intelligence," <https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/>
- "Automation and Anxiety: Will smarter machines cause mass unemployment?," <https://www.economist.com/news/special-report/21700758-will-smarter-machines-cause-mass-unemployment-automation-and-anxiety>

[In-Class Powerpoint Presentation [Slides](#)]

October 12 (Th) Technology as seen by a humanist (Engell)

- H. G. Wells, *The Time Machine* (1895, novel). Any edition will do, but the best is the Norton Critical Edition (W. W. Norton, 2009); original edition electronically from Harvard: <http://nrs.harvard.edu/urn-3:FHCL.HOUGH:2643113>
- Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies* (2014), pp. 9-12, 39-50, 97-106, 122-24, 129-46, 168-73 [pdf].
- Harvard School of Public Health Report on Use of Smartphones and cognitive tasks: [http://www.health.harvard.edu/blog/keeping-your-smartphone-nearby-may-not-be-so-smart-2017080212163?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=08.04.2017\(1\)](http://www.health.harvard.edu/blog/keeping-your-smartphone-nearby-may-not-be-so-smart-2017080212163?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=08.04.2017(1))

October 13 (Fri) Technology Assignment Due

Econ 1000A and 1000B: [Ec 1000 Fall 2017 Assignment 2 Technology.pdf](#)

October 17 (Tu) Mid-term stock taking (Engell, Friedman)

***** October 19 (Th) Mid-term exam *****

Previous midterm exams:

- Spring 2014 [[pdf](#)]
- Spring 2016 [[pdf](#)]

3. Inequality

October 24 (Tu) Inequality and Education as seen by a teacher and lawyer advocating educational reform (Michael Rebell, Columbia)

- Richard Rothstein, *Class and Schools: Using Social, Economic, and Educational Reform to Close the Black-White Achievement Gap*, Chapter 1, "Social class, student achievement, and the black-white achievement gap" (pp. 13-59) [[pdf](#)].
- Michael A. Rebell, "The Right to Comprehensive Educational Opportunity," in *Harvard Civil Rights-Civil Liberties Law Review* (2012) [[pdf](#)]. Please note: the lengthy footnotes in this article are less important than the text and should be consulted primarily on issues that individual students find particularly vital.
- Michael A. Rebell, "2017 Supplement to "The Right to Comprehensive Educational Opportunity"™" [[pdf](#)].

October 26 (Th) Inequality as seen by a humanist (Engell)

October 31 (Tu) Inequality as seen by a humanist (Engell)

- Frank Norris, "A Deal in Wheat" (1903) [[pdf](#)].
- Michael Norton and Dan Ariely, "Building a Better America" "One Wealth Quintile at a Time," *Perspectives on Psychological Science* 6:1 (January 2011): 9-12 [[pdf](#)] "also a [Podcast](#) with Michael Norton from NPR.
- James Engell, "What Is College For?" National Humanities Center talk (2011): <http://vimeo.com/70942919>
- Documents for "Haves and Have Nots" in Higher Education (articles or columns by Tamar Lewin, David Brooks, W. Bradford Wilcox, Harold Meyerson) [[pdf](#)].
- Greg J. Duncan and Richard J. Murnane, *Restoring Opportunity: The Crisis of Inequality and the Challenge for American Education* (2014), pp. 1-33, 123-33, 140-44 [[pdf](#)].
- US Conference of Catholic Bishops Labor Day Statement 2013: <http://www.usccb.org/issues-and-action/human-life-and-dignity/labor-employment/labor-day-statement-2013.cfm>

November 2 (Th) Inequality as seen by an economist (Friedman)

November 7 (Tu) Inequality as seen by an economist (Friedman)

- Simon Kuznets, "Economic Growth and Income Inequality" (1955) [[pdf](#)].
- Jeffrey Williamson, *Inequality, Poverty and History* (1991), Ch. 1 [[pdf](#)].
- Thomas Piketty and Emmanuel Saez, "Income Inequality in the United States, 1913-1998," *Quarterly Journal of Economics* (2003): <http://elsa.berkeley.edu/~saez/pikettyqje.pdf> and update in "Striking it Richer: The Evolution of Top Incomes in the United States" (2013): <http://elsa.berkeley.edu/~saez/saez-UStopincomes-2012.pdf>
- Claudia Goldin and Lawrence Katz, *The Race Between Education and Technology* (2008), Ch. 3 [[pdf](#)].
- David H. Autor, "Skills, Education, and the Rise of Earnings Inequality among the Other 99 Percent," (2014) [[pdf](#)].
- Thomas Piketty, *Capital in the Twenty-First Century* (2014), Introduction and Conclusion [[pdf](#)].
- Raj Chetty et al., "Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility" (2014): <http://eml.berkeley.edu/~saez/chettyetalAERPP2014.pdf>

[In-Class Powerpoint Presentation [Slides](#)].

November 10 (Fri) Inequality Assignment Due

Inequality assignment for both section:

- [Questions](#)

- [Data](#)

4. Education

November 9 (Th) Education as seen by a humanist (Engell)

November 14 (Tu) Education as seen by a humanist (Engell)

- John Locke, from *On Education* (1693): [Some Thoughts Concerning Education by John Locke.pdf](#)
- W. E. B. Du Bois, from *The Souls of Black Folk* (1903), The Forethought and chapters I, II, and IV: http://nrs.harvard.edu/urn-3:hul.ebookbatch.ATLAM_batch:ATLAP000013238 [Translation to the epigraph to Chapter IV].
- James Ryan, excerpt from *Five Miles Away, A World Apart: One City, Two Schools, and the Story of Educational Opportunity in Modern America* (2010): [Ryan_Required.pdf](#) / [Ryan_Optional.pdf](#) / [RYAN NOTES.pdf](#)
- Tressie McMillan Cottom, excerpt from *Lower Ed: The Troubling Rise of For-Profit Colleges in the New Economy* (2017): [COTTOM.pdf](#)

November 16 (Th) Education as seen by a natural scientist (Steven Hyman, Broad Institute)

- "Heritability 101: What is 'Heritability'?" <http://www.nealelab.is/blog/2017/9/13/heritability-101-what-is-heritability>
- "Genome: Genome-wide association study identifies 74 loci associated with educational attainment," [pdf].
- FAQ [pdf].

[In-Class Powerpoint Presentation [Slides](#)].

November 21 (Tu) Education as seen by an economist (Friedman)

November 28 (Tu) Education as seen by an economist (Friedman)

- Alan Krueger and Diane Whitmore, "The Effect of Attending a Small Class in the Early Grades on College-Test Taking and Middle School Test Results: Evidence from Project STAR" (2001) <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/pdf/2667840.pdf>
- Erik Hanushek, "The Failure of Input-Based Schooling Policies" (2003), pp. 64-77, 85-95 <http://hanushek.stanford.edu/sites/default/files/publications/Hanushek%202003%20EJ%20113%28485%29.pdf>
- Raj Chetty et al., "The \$320,000 Kindergarten Teachers" (2010) http://www.equality-of-opportunity.org/assets/documents/star_summary.pdf
- "Great Teaching" (2012) <http://educationnext.org/great-teaching/>
- Alan Krueger, "Inequality, Too Much of a Good Thing" (2003), pp. 24-55 [pdf].
- Diane Whitmore Schanzenbach et al., "Seven Facts on Noncognitive Skills from Education to the Labor Market" (2016) http://www.hamiltonproject.org/assets/files/seven_facts_noncognitive_skills_education_labor_market.pdf
- Julia Chabrier et al., "What Can We Learn from Charter School Lotteries?" (2016) <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.30.3.57>
- Caroline Hoxby and Christopher Avery, "The Missing 'One-Offs': The Hidden Supply of High-Achieving, Low-Income Students" (2013) https://www.brookings.edu/wp-content/uploads/2016/07/2013a_hoxby.pdf

[In-Class Powerpoint Presentation [Slides](#)].

Recommended reading: Bari Walsh, "The Lasting Payoff of Early Ed":

[https://www.gse.harvard.edu/news/uk/17/11/lasting-payoff-early-ed?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=11.28.2017%20\(1\)](https://www.gse.harvard.edu/news/uk/17/11/lasting-payoff-early-ed?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=11.28.2017%20(1))

In Conclusion

November 30 (Th) What have we learned? What don't we still know? (Engell, Friedman)

- Daniel Bell, *The Cultural Contradictions of Capitalism* (1976), pp. 244-251 [pdf].
- David Foster Wallace, address to graduating students of Kenyon College, 2005: [DFWKenyonAddress2005 2.pdf](#)

December 1 (Fri) Education Assignment Due

Assignment 4 Education Econ 1000 2017.pdf

Final Examination: please consult Registrar's announcements for time and location.

Previous final exams:

- Spring 2014 [pdf]
- Spring 2016 [pdf]
- Spring 2016 alternate [pdf]

Please note that previous iterations of the course had as the fourth unit Evolution, not Education.