

EC 970 Sophomore Tutorial: Online Labor
Last Revised: January 10, 2009

Instructor

John Horton

Email: john.joseph.horton@gmail.com

Phone: (617) 595-9431

Times and Location

Office Hours: Monday 7:30-9:00pm, Pforzheimer House Dining Hall

Class Times & Location: Tuesday/Thursday 7:30-9:00pm, Moors 2 Classroom, Pforzheimer House

Course Description

This tutorial will explore the phenomena of people working online. We will use a broad definition of work that encompasses all Internet-mediated activity—paid or unpaid—that produces useful goods. For example, our attention and interest will range from individuals writing Amazon book reviews for fun to people who perform data entry as full-time paid jobs.

The class is divided into four modules: three substantive modules and one “methods” module that will help students develop the tools needed for a research paper. We will begin the course by examining what motivates online workers and what is unique about online modes of production (Module I: 5 classes). Following a discussion of methods (Module II: 3 classes), we will examine the institutions that enable online work and analyze online work at the market level (Module III: 7 classes). To support full engagement with the readings, we will devote two classes to lecture-style presentations of (a) the model of the competitive labor market and (b) trade. Finally, we will discuss the promise of these markets for economic development and how economic principles could be used to design online markets and online work. We will also consider a more pessimistic, critical perspective of these markets.

In the methods modules, students will learn to use cross-platform, open-source tools to aid in research. We will discuss formatting mathematical formula, building a bibliographic database, using open-source programming languages for data manipulation and statistical computing, open-source survey building and how to conduct online experiments. Concentrators with an interest in computer science or experience programming are especially encouraged to enroll.

Requirements and Expectations

Attendance, classroom preparation and participation (30% of final grade)

Students are required to attend all classes. For every substantive, non-lecture class, all students are expected to complete the readings and discuss them with the class. Every class after the first meeting will have an appointed discussion leader. They will be responsible for:

- (1) opening the discussion with a short summary of the readings and
- (2) taking notes during class and preparing a post for the class blog summarizing the classroom discussion (within the next day).

Responses to the readings (20% of grade)

Students will prepare written responses of approximately 400 words for each class and post them to the class blog no later than 5:00pm on the day before each class. Students are expected to read the responses of other students prior to the start of class. These writing should *not* be summaries of the readings—they should offer rigorous economic analysis and original thought. The essays may focus on

a particular aspect of a particular paper. In addition to the written response, for each class, students are required bring three questions raised by the readings.

Final Paper (30% of grade)

During **Class 8** we will discuss research paper topics. All projects will be empirical, but students may choose between an experimental project and an observational project. For an experimental project, students will design their own experiments and run them on Amazon's Mechanical Turk (AMT). For those choosing to do an observational project, I will help them create a dataset using data from an online labor market. Project proposals are due by **Class 12**. A rough draft is due by **Class 19**. The exact due date for the paper is **TBD**.

Modules

- I. Production & Incentives (5 classes)
- II. Methods (3 classes)
- III. Institutions and Market-level Analysis (7 classes)
- IV. Implications (4 classes)

Readings

With the exception of the *Crowdsourcing* by Jeff Howe, all of the readings can be found online. There are several hard copy references for the “methods” module that are not available online, but I am working on obtaining permissions to distribute excerpts. Although Benkler's book is available online (and we will only be focusing on the first part of the book), I recommend getting a hard copy---it is truly excellent.

Module I: Production & Incentives

Class 1: Online production

Benkler, Yochai. 2007. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press.

Read: Part I, Chapter 2.

<http://www.congo-education.net/wealth-of-networks/>

von Ahn, Luis. 2007. “Human Computation.”

Proceedings of the 4th International Conference on Knowledge Capture, 5-6.

<http://tinyurl.com/y9o67gt>

Howe, Jeff. 2008. *Crowdsourcing: Why the Power of the Crowd is Driving the Future of Business*. Three Rivers Press.

(Available at the Coop)

Class 2: Production and Employment (Classic Views)

Coase, Ronald. 1937. “The Nature of the Firm.” *Economica*, 4(16):386-405.

<http://www.jstor.org/stable/2626876>

Simon, Herbert. 1951. “A Formal Theory of the Employment Relationship.” *Econometrica*, 19(3):293-305.

<http://www.jstor.org/stable/1906815>

Class 3: Incentives I

Benkler, Yochai. 2007. *The Wealth of Networks: How Social Production Transforms Markets and Freedom.* Yale University Press.

Read: Part I, Chapter 4.

<http://www.congo-education.net/wealth-of-networks/>

Smith, Adam. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*

Read: Book 1. Chapter 10. "Of Wages and Profit in the different Employments of Labour and Stock"

<http://geolib.com/smith.adam/won1-10.html>

Class 4: Incentives II

Wu, Fang, Wilkinson, Dennis M. and Huberman, Bernardo. 2009. "Feedback Loops of Attention in Peer Production." *Proceedings of SocialCom-09: The 2009 International Conference on Social Computing*

<http://www.hpl.hp.com/research/scl/papers/feedbacks/feedbacks.pdf>

Huberman, Bernardo, Romero, David and Fang Wu. 2009. "Crowdsourcing, Attention and Productivity" *Journal of Information Science (in press)*

Parkes, David and Shaili Jain. 2009. "The Role of Game Theory in Human Computation Systems" HCOMP 2009

<http://www.eecs.harvard.edu/~shailij/papers/hcomp-position.pdf>

Lerner, Josh and Tirole, Jean. 2002. "Some Simple Economics of Open Source" *The Journal of Industrial Economics*, 50(2):197-234.

<http://www.jstor.org/stable/3569837>

Class 5: Empirical approach to incentives

Mason, Winter and Watts, Duncan. 2009. "Financial Incentives and the 'Performance of Crowds'" KDD-HCOMP '09.

http://research.yahoo.com/files/m_w_HComp.pdf

Chilton, Lydia and Horton, John. 2010. "Labor Economics and Crowdsourcing" *Unpublished.*

<http://www.people.fas.harvard.edu/~horton/>

Sheng, Victor S., Provost, Foster, Ipeirotis Panagiotis. 2008. "Get Another Label? Improving Data Quality and Data Mining Using Multiple, Noisy Labelers." KDD-2008.

<http://pages.stern.nyu.edu/~panos/publications/kdd2008.pdf>

Module II: Methods

Note: For the three methods sessions, we will complete a series of practical exercises in class that will be useful for completing your research paper. Prior to the start of the module, I will distribute links to tutorials and homework assignments.

Class 6: Statistical Computing with R

<http://cran.r-project.org/doc/manuals/R-intro.pdf>

Not required:

Kleiber and Zeileis *Applied Econometrics with R*

Chambers *Software for Data Analysis*

Wickham, Hadley. *The Grammar of Graphics: ggplot2*

<http://had.co.nz/ggplot2/>

Class 7: Conducting Online Experiments

Horton, John Rand, David and Zeckhauser, Richard. 2010. "The Potential of Online Experiments."
Harvard Mimeograph.

<http://www.people.fas.harvard.edu/~horton/>

Class 8: Writing, Plots, Tables and Sources

Not required:

Edward Tufte *The Visual Display of Quantitative Information*

Miller, Jane E. *The Chicago Guide to Writing About Multivariate Analysis*

Williams, Joseph M. *Style: Toward Clarity and Grace*

Module III: Institutions & Market Level Analysis

Class 9: Model of the competitive labor market

Readings TBD.

Class 10: Labor Market Intermediation

Autor, David. 2008. "The Economics of Labor Market Intermediation: An Analytic Framework"
NBER Working Paper. September 2008.

<http://www.nber.org/papers/w14348>

Full Book: <http://tinyurl.com/ycqvtp>

Autor, David. 2001. "Wiring the Labor Market"

Journal of Economic Perspectives, v15(1, Winter), 25-40.

<http://www.nber.org/papers/w7959>

Class 11: Online Labor Markets

Horton, John J. 2010. "Online Labor Markets" Unpublished paper.

<http://www.people.fas.harvard.edu/~horton/>

Frei, Brent. 2009. *Paid Crowdsourcing Panel Discussion and Paid Crowdsourcing Research Report.*

Paid Crowdsourcing Report: <http://tinyurl.com/yflq72k>

Panel Discussion Transcript: <http://tinyurl.com/yjw8z2c>

Tsatalos, Odysseas. 2006. US Patent for "Virtual office environment"

Publication Number 2006/0284838

<http://tinyurl.com/ygvqby6>

Class 12: Competition among markets

Proposals Due

Katz and Shapiro. 1985. "Network Externalities, Competition and Compatibility,"

American Economic Review

<http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/1814809>

Caillaud and Jullien. 2003. "Chicken and Egg: Competition among Intermediation

Service Providers," *Rand*

<http://tinyurl.com/ya5qpcb>

Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures" *The Journal of Political Economy.*

64(5):416-424

<http://www.jstor.org/stable/1826343>

Class 13: Role of Geography in Traditional Markets.

Roback, Jennifer. 1982. "Wages, Rents and the Quality of Life" *Journal of Political Economy.*

90(6):1257- 1278

<http://www.jstor.org/stable/1830947>

Glaeser, Edward L. and Ponzetto, Giacomo A.M. 2008. "Did the Death of Distance Hurt Detroit and Help New York" Published in the NBER Book *The Economics of Aggregation*

<http://www.economics.harvard.edu/faculty/glaeser/files/disdeath.pdf>

Class 14: Models of Trade

Readings TBD.

Class 15: Trade and Wages

David Autor. 2009.

MIT 14.662 Graduate Labor Economics II Spring 2009

Lecture Note 5: Trade, Outsourcing, Skills and Wages

<http://econ-www.mit.edu/files/4211>

Class 16: Trade and Organizations

Antras, Pol and Rossi-Hansberg, Esteban. “Organizations and Trade.” *Annual Review of Economics*, 1, 43-64.

<http://www.princeton.edu/~erossi/TO.pdf>

Grossman, Gene M. and Rossi-Hansberg, Esteban. 2009. “Trading Tasks: A Simple Theory of Offshoring.” *American Economic Review* 98(5):1978-1997

<http://tinyurl.com/ygf5hw6>

Module III: Implications

Class 17: The Development Possibilities of Online Work

Clemens, Michael A., Montenegro, Claudio E. and Pritchett Lant. 2009. “The Place Premium: Wage Differences for Identical Work across the US Border.” *World Bank Policy Research Working Paper Number 4671*

Horton, John J. 2010. “The Conditions of the Turking Class: Are Online Employers Fair and Honest?” Unpublished.

<http://www.people.fas.harvard.edu/~horton/>

Acemoglu, Daron Johnson S. and Robinson, J.A. (2004) “Institutions as the fundamental cause of long term growth” NBER working paper.

Class 18: Critical Perspectives

Zittrain, Jonathan. 2009. Presentation “Minds for Sale”

<http://www.youtube.com/watch?v=Dw3h-rae3uo>

Zittrain, Jonathan. 2008. “Ubiquitous Human Computing.”

Oxford Legal Studies Research Paper No. 32/2008

http://papers.ssrn.com.ezp-prod1.hul.harvard.edu/sol3/papers.cfm?abstract_id=1140445

Lilly Irani. 2009. Presentation on “Agency and Exploitation in Amazon Mechanical Turk” *Internet as Playground and Factory Conference* at The New School, New York, NY, Nov 13, 2009.

<http://www.slideshare.net/lirani/agency-and-exploitation-in-amazon-mechanical-turk>

Marx, Karl. 1844. “Estranged Labour”

Economic and Philosophical Manuscripts of 1844

<http://www.marxists.org/archive/marx/works/1844/manuscripts/labour.htm>

Class 19: Design of Online Work and Online Labor Markets

Roth, Alvin E. 2002. “The Economist as Engineer: Game Theory, Experimentation, and Computation as Tools for Design Economics.” *Econometrica*, 70(4):1341-1378.

<http://www.jstor.org/stable/3082001>

Von Ahn, Luis and Dabbish, Laura. 2009. “Designing Games with a Purpose”

<http://tinyurl.com/yje2bb2>

Horton, John J. 2010. "A Simple Mechanism For Getting an Agent's Attention" Unpublished.
<http://www.people.fas.harvard.edu/~horton/>

Class 20: How much work?

Blinder, Alan S. 2009. "How Many US Jobs Might Be Offshoreable?" *World Economics*, 10(2):41-78
<http://tinyurl.com/yggq3p5>

Malone, Thomas W. and Laubacher, Robert J. 1998. Dawn of the E-Lance Economy. *Harvard Business Review*, September/October
<http://tinyurl.com/yjck2q>

Remaining Classes: Student Presentations