

STS 200F
Sociology of Innovation and Invention
Tuesday, Thursday 2.15-3.45pm
Lane History Corner [Bldg. 200], room 107

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This course examines the social, cultural, and economic factors that foster novelty. We will study a wide array of historical contexts, from the Renaissance to the present day, in which clusters of related innovations transformed the way things are done. We ask when do such innovations cascade out and produce social inventions that, for good and bad, create profound changes in how things are done, leading to new forms of organizations and new categories of people.

By the end of the course, committed students will have attained:

- a knowledge of, and ability to describe and identify, the fundamental processes of innovation and invention;
- a deeper understanding of how technologies develop and evolve;
- awareness of major theoretical traditions that study these phenomena;
- insight into the role played by individuals in the innovation process;
- a sense of the distinctive and shared trends in the emergence of new kinds of organizations.

READINGS:

The two books are available at the campus bookstore. The other articles are posted on the Coursework site.

W. Brian Arthur, *The Nature of Technology*, Free Press, 2011, paperback.

John Padgett and W.W. Powell, *The Emergence of Organizations and Markets*, Princeton University Press, 2012, paperback.

CLASS PARTICIPATION AND ATTENDANCE:

Class attendance is required and is particularly important in order to maintain a sense of chronology and to gain a sense of the development of the research literature. If you miss a class, it is your responsibility to learn about and promptly complete any work that was assigned. Absences and tardiness will affect your grade adversely.

In terms of participation, we encourage you to contribute to class discussion with questions and ideas. We expect everyone to be respectful and tolerant of others in the class.

ASSIGNMENTS:

The course's evaluative requirements fit into one of four categories—comment, synthesis, presentation and analysis.

Comment: This includes attendance and participation. Both your presence and active, thoughtful participation are required.

Synthesis: You will submit a portfolio of four items, reviewing readings and reflecting on particular questions that we assign. The goal is to give you a chance to synthesize the material we cover and to consider how scholarly articles and substantive topics can be integrated. Each review should be approximately three hundred words. Think of them as like a *New York Times* op-ed piece. The essays should be well-argued, based on command of ideas, and persuasive. The questions and due dates are listed below; after receiving feedback on them, you are welcome to revise and turn all four in on the last day of class.

Presentation: Every student will make a short presentation to the class on one of the topics we are discussing. These will be done with one or two other classmates, and be roughly twenty minutes in length. The dates are Jan. 22, Feb. 19, March 10.

Analysis: You will submit two papers during the course of the quarter, one short (5-page) paper and one longer (10-15 pages) paper. (These are single spaced.) The first will focus on your initial thoughts on analyzing an invention or technology of your choosing. It is due on Feb. 12. We will provide comments and suggestions to you within a week of submission. Your second paper will deepen the material you have chosen and provide a thorough analytical essay that draws on class materials to explore your topic. Kevin DiPirro, the STS writing advisor, is a valuable resource in the Hume Center for Writing and Speaking. His email is kdipirro@stanford.edu.

GRADES:

Your final grade will be determined by the sum of your work.

Participation	20%
First paper (due Feb. 12)	15%
Presentation	20%
Portfolio of Reviews (due 1/22, 2/5 & 19, 3/3)	20%
Second paper (due March 12)	25%

STUDENTS WITH DOCUMENTED DISABILITIES:

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Student Disability Resource Center (SDRC). SDRC staff will evaluate the request with required documentation and prepare an *Accommodation Letter* for faculty dated in the current quarter. Students should contact the SDRC as soon as possible. The OAE is located at 563 Salvatierra Walk (phone: [723-1066](tel:723-1066), [723-1067](tel:723-1067) TTY).

Schedule of Classes

January 6: Introduction and Assignments

January 8: Theoretical Background - Multiple Networks

Johnson, Steven. "The Tech Innovators of the Victorian Age." *Financial Times* Oct. 17, 2014.

"The Problem of Emergence," Ch. 1 in J. Padgett and W. Powell, *The Emergence of Organizations and Markets* (hereafter *EOM*), Princeton University Press, 2012.

January 13: Academic Entrepreneurship

W.W. Powell and K. Sandholtz, Ch. 13 in *EOM*, "Chance, Necessite, et Naivete: Ingredients to Create a New Organizational Form," pp. 379-433.

Jason Owen-Smith and W. W. Powell, "Careers and Contradictions: Faculty responses to the Transformation of Knowledge and its Uses in the Life Sciences." *Research in the Sociology of Work* 10 (2001): 109-140.

January 15: Early Capitalism in Renaissance Florence

J.F. Padgett, Ch. 6 in *EOM*, "Transposition and Refunctionality: The Birth of Partnership Systems in Renaissance Florence," pp. 168-207.

January 20: Industrial Districts and High-Tech Clusters

W.W. Powell et al, Ch. 14 in *EOM*, "Organizational and Institutional Genesis: The Emergence of High-Tech Clusters in the Life Sciences," pp. 434-465.

Lee Fleming et. al. Ch. 17 in *EOM*, "Why the Valley Went First: Aggregation and Emergence in Regional Inventor Networks," pp. 520-544.

January 22: Student Presentations

First synthesis due: Consider the differing roles of an anchor tenant and a dominant actor. Then analyze the recent debates over whether Twitter will be the catalyst for the mid-Market area in San Francisco. We have posted several stories about the tax breaks that Twitter received, along with stories on the backlash against techies in the city.

January 27: Political Innovations and Communist Transitions

J. F. Padgett, Ch. 9 in *EOM*, "The Politics of Communist Economic Reform: Soviet Union and China," pp. 271-315.

No Class January 29

February 3: Business Elites and Organizational Innovations

W.W. Powell and J. Owen-Smith, Ch. 15 in *EOM*, “An Open Elite: Arbiters, Catalysts, or Gatekeepers in the Dynamics of Industry Evolution,” pp. 466-495.

February 5: The Mysteries of Discovery: Cracking the Code of Life

Second synthesis due: We often associate innovation with reform and social change, and think of invention as ushering in a new generation of leaders. But P & P argue that invention often occurs out of deeply conservative motives, as those in power pursue new means to retain their positions. Use examples from the Renaissance, or post- Communism, or the contemporary life sciences to argue for or against this claim.

February 10: Combinatorial Evolution and Technology

W. Brian Arthur, *The Nature of Technology*, chs. 1-4, pp. 9-85.

February 12: Where Do Inventions Come From?

W. Brian Arthur, *The Nature of Technology*, chs. 5-8, pp. 87-165.

First draft of your course paper is due.

February 17: The Economy as Evolving System

W. Brian Arthur, *The Nature of Technology*, chs. 9-11, pp. 167-216.

February 19: Student Presentations

Third synthesis due: Brian Arthur argues that technologies “build” themselves, by organically growing outward, adding elements and creating new niches of opportunity. Using your own example of a contemporary technology, analyze it carefully in terms of the six steps that Arthur outlines.

Contemporary Questions: Innovations or Invention?

February 24: Print Media and Its Futures

Visitor: Christine Larson, PhD candidate, Dept. of Communication, and writer for *Wall Street Journal* and *New York Times*

C. Anderson, E. Bell, & C. Shirky, Tow Center Report: Post Industrial Journalism. pp. 1-19.

Ken Doctor, *Newsonomics*. 2010. St. Martin's Press.
Chapter 2: The Digital Dozen Will Dominate

S. Lewis, "The tension between professional control and open participation," *Information, Communication, and Society*. 15,6 (2012): 836-55.

February 26: Crowdsourcing

Irish loan funds:

A. Hollis and A. Sweetman, "The life cycle of a microfinance institution: the Irish loan funds," *Journal of Economic Behavior and Organization* 46,3 (2001): 291-311.

Grameen Bank:

Current: <http://www.reuters.com/article/2013/11/05/bangladesh-grameenbank-idUSL3N0IQ4N720131105>

In U.S.: http://www.nytimes.com/2013/10/29/business/microcredit-for-americans.html?_r=0

Kiva:

http://media.kiva.org/INNOV0201_flannery_kiva.pdf

Kula ring:

B. Malinowski, classic study of Trobriand islanders and their kula ring:

<https://ia600300.us.archive.org/19/items/argonautsofweste00mali/argonautsofweste00mali.pdf>

Shorter description of Kula ring, with some game theory

analysis: <http://www.ccsenet.org/journal/index.php/res/article/view/15311/10372>

March 3: Modernism and Food

H. Rao, P. Monin, and R. Durand, "Institutional Change in Toque Ville: Nouvelle Cuisine as an Identity Movement in French Gastronomy," *American Journal of Sociology* 108, 4 (2003): 795-843.

S. Svejenova, C. Mazza, and M. Planellas, "Cooking up change in haute cuisine: Ferran Adria as an institutional entrepreneur," *Journal of Organizational Behavior* 28 (2007): 539-61.

A. Petruzzelli and T. Savino, "Search, Recombination, and Innovation: Lessons from Haute Cuisine," *Long Range Planning*, 47, 4 (2014): 224:38.

Fourth synthesis due: What do you make of this modernist food and all these new "auteur" chefs? Are they changing what we eat, how we eat, or the standards by which we consider culinary creativity? Are they changing what a restaurant is, to being more theatrical? Do any of these temples of high cuisine become anchor tenants in neighborhoods or cities?

March 5: Social Entrepreneurship

J. Fruchterman, "For Love or Lucre," *Stanford Social Innovation Review* 9,2: Spring 2011

A. Ebrahim, and V. Kasturi Rangan. "[Acumen Fund: Measurement in Impact Investing \(A\)](#)". Harvard Business School Case 310-011, Revised May 2011.

March 10: Student Presentations

March 12: Final papers due.

March 12: Reflections on Stanford, Silicon Valley, and Technology Clusters (or you promised me flying cars, instead we got 140 characters!)

John Tierney, "How to Create a Tech Start-up Scene if You're Not in Silicon Valley," *The Atlantic* Dec 23, 2014.

Jodi Kantor, "A Brand New World in Which Men Ruled," *New York Times* Dec. 23, 2014.

Ken Auletta, "Get Rich U: There are no walls between Stanford and Silicon Valley. Should there be?" *The New Yorker* April 30, 2012.