

The Economics of Innovation in Technology and Design

Professors W. Milberg and C. Teixeira
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This course can be taken for graduate or undergraduate credit in any division of the New School
CRN 3142 - GEEO 5117 – A
CRN 5297 - PUDM 4407 – A
CRN 6421 - UECO 4407 – A

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Course Description

This course is aimed at understanding the causes and consequences of innovation. The focus will be on both technology and design and the aim is to bring together key ideas from economics and design management. We will take up cases of innovation from history and from contemporary society and attempt to answer the following basic questions. What is innovation? How are technology and design related? What role does innovation play in economic growth and capitalist development generally? What drives innovation in technology and design? Can innovation be “managed”? The course will conclude with a discussion of innovation in the context of globalization, an assessment of the long-term economic importance of the “new economy” and an economic analysis of sustainable design. Most topics will also include a case study or case history or a specific country or commodity whose design and technology provide some general lessons for the understanding of what makes innovation successful and how that success is understood and sustained in society. The course is intended for upper-level undergraduates and beginning M.A. students. Prerequisites: Understanding U.S. Capitalism or Understanding World Capitalism (UECO2499 or UECO2500) or an equivalent course in the principles of economics or permission of the instructor.

Grades: Grades will be based on class participation, a mid-term exam, a final exam and a short research paper of 8-12 pages. The paper topic must be approved in advance by the Professor. Graduate students will be required to do a slightly more extensive research project and should meet with the professors to discuss their research.

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Course Outline and Readings

W1: What is innovation?

W2: Innovation in capitalist development

- Heskett, John, "From Traditional Crafts to Industrial Art", in Industrial Design, London, Thames and Hudson, 1980, pp.10-26.
- Heskett, John, "The Emergence of the Industrial Design Profession in the United States", in The Alliance of Art and Industry, New York, Hudson Hills Press, 2002, pp.67-81.
- Koehn, Nancy, "Josiah Wedgwood and the First Industrial Revolution," Chapter 2 in Thomas Mcraw, editor, Creating Modern Capitalism, Cambridge: Harvard University Press, 1997.
- Rosenberg, Nathan, "Marx as a Student of Technology," in Inside the Black Box, Cambridge: Cambridge University Press, 1992.
- Smith, Adam, The Wealth of Nations, 1776, excerpt.
- Schumpeter, Joseph, Capitalism, Socialism, Democracy, 1942, excerpt.

W3: Knowledge creation

- Simon, Herbert, "The Science of Design: Creating the Artificial", The Sciences of the Artificial, Massachusetts: The MIT Press, 3rd ed., 1996. pp.111-138.
- Florida, Richard, "Technology, Talent and Tolerance: The 3 T's of Economic Development", in The Rise of the Creative Class, New York, Basic Books, 2002, pp.249-266.
- Drucker, Peter, "The Change Leader", in Management Challenges for the 21st Century. New York: Harper Business, 1999, pp.71-93.
- Moky, Joel, The Gift of Athena, Princeton: Princeton University Press, 2005, selection.
- David, Paul, "Clio, and the Economics of QWERTY," American Economic Review, 1986.

W4: The firm as locus of innovation

- Drucker, Peter, "Knowledge-Worker Productivity", in Management Challenges for the 21st Century. New York: Harper Business, 1999, pp.133-159.
- "Doing Differently: How Social-Technological Networks are Changing the Design Process in the Fashion Industry". Author: Carlos Teixeira, International Design Conference. Taipei, Taiwan – November 1-4, 2005.
- Mickelthwaite chapters on the origins of the firm.
- Teece, David, essay on appropriability.
- McCraw, Thomas and Richard Tedlow, "Henry Ford, Alfred Sloan and the Three Phases of Marketing," chapter 8 in Thomas Mcraw, editor, Creating Modern Capitalism, Cambridge: Harvard University Press, 1997.

- Chandler, A., “The Enduring Logic of Industrial Success,” Harvard Business Review, April-May, 1990.

W5: What drives innovation?

- Hamel, Gary and Prahalad, C.K., “Getting Off the Treadmill”, in Competing for the Future, Massachusetts, Harvard Business School Press, 1994, pp.1-25.
- Hamel, Gary and Prahalad, C.K., “How Competition for the Future Is Different”, in Competing for the Future, Massachusetts, Harvard Business School Press, 1994, pp.27-47.
- Rosenberg on supply and demand theories
- Schumpeter, Joseph, Capitalism, Socialism and Democracy, New York: Harper, 1942, chapter 7.
- Rosenberg, Nathan, “Capital Goods, Technology and Economic Growth,” Oxford Economic Papers, V. 15, No. 3, Nov. 1963.

W6: The diffusion of knowledge

- Rogers, Everett M., “Elements of Diffusion”, in Diffusion of Innovations, New York, Free Press, 1962, pp.1-37, pp.17-50.
- Barabasi, Albert-Laszlo, “The Fifth Link: Hubs and Connectors”, in Linked: The New Science of Networks, Massachusetts: Perseus Publishing, 2002, pp.55-64.
- Mansfield
- Dosi, Giovanni

W7: The social construction of demand

- Bijker, Wiebe E. and Pinch, Trevor J., “The Social Construction of Facts and Artifacts”, in The Social Construction of Technological System, Cambridge, The MIT Press, 1989.
- Clark, Andy, “Global Swarming”, in Natural-Born Cyborgs, Oxford: Oxford University Press, 2003, pp.142-165.
- Schor, Juliet and Douglas Hold, The Consumer Society Reader, New York: The New Press, 2002, selections.
- Roseberry, William, “The Rise of Yuppie Coffee and the Reimagination of Class in the United States,” American Anthropologist, V. 98, Dec. 996, pp. 762-775.

W8: Branding and product differentiation

- Heskett, John, “Utility and Significance”, in Toothpicks & Logos, Oxford: Oxford University Press, 2002, pp.35-54.
- Porter, Michael, “How Competitive Forces Shape Strategy” in Marketing Classics, New Jersey: Prentice Hall, 1990, pp.287-298.
- Varian, Hal, Intermediate Microeconomics, selections.
- Shephard, William, The Economics of Industrial Organization, Prentice Hall, 1979, chapter on advertising

- **W9: Managing innovation**

- Christensen, Clayton. "Introduction", in The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston: Harvard Business School Press, 1997, pp.ix-xxiv.
- Christensen, Clayton. "Discovering New and Emerging Markets", in The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston: Harvard Business School Press, 1997, pp.147-163.
- Florida, Richard, "Managing Creativity", in The Rise of the Creative Class. New York: Basic Books, 2002, pp. 129-143.
- Abernathy, Frederick et al., A Stitch in Time: Lean retailing and the transformation of manufacturing—Lessons from the apparel and textile industries, Oxford: Oxford University Press, 1999, selections.
- Gereffi and Sturgeon

- **W10: Patents and Innovation**

- "A Market for Ideas: A Survey of Patents and Technology", in The Economist, October 22nd-28th 2005, pp.1-18.
- Scherer, Fredrick, Industrial Market Structure and Economic Performance, Chicago: Rand McNally, 1984, chapter 1.
- Chang, Ha-Joon, "Intellectual Property Rights and Economic Development: Historical Lessons and Emerging Issues," Journal of Human Development, V. 2, 2001, pp. 287-309.

- **W11: National Innovation Systems**

- Nelson, Richard, National Innovation Systems, New York: Oxford University Press, 1993, selections.
- Best, Michael on clusters
- Financing for innovation/venture capital
- "Design as a Knowledge Agent". Authors: Carlos Teixeira and Paola Bertola. Asia Design Conference 2001 Seoul, South Korea - October 11-13, 2001.

- **W12: Innovation in a globalized economy**

- Dertouzos, Michael, "Vision", in What Will Be. New York: Haper Edge, 1997, pp.3-24.
- Humphries, John, "Undustrial Upgrading in Global Value Chains," ILO Working Paper, 2004
- Milberg, William "The Changing Structure of International Trade Linked to Global Production Systems: What are the Policy Implications?" ILO Working Paper, 2004.
- Kaplinsky, Ralph, Globalization, Poverty and Inequality, London: Polity Press, 2005, chapters 4, 5.
- Dicken, Peter, Global Shift, 4th edition, New York: Guilford, selections.

W13: Innovation in the “new economy”

- Gordon, Robert, “Does the ‘New Economy’ Measure up to the Great Inventions of the Past?” The Journal of Economic Perspectives, V. 14, No. 4, Autumn, 2000, pp. 49-74.
- Brynjolfsson, Erik and Lorin Hitt, “Beyond Computation: Information Technology, Organizational Transformation and Business Performance,” The Journal of Economic Perspectives, V. 14, No. 4, Autumn, 2000, pp. 23-48.

W14: The economics of sustainable design

- Fry, Tony, “Introduction”, in A New Design Philosophy: An Introduction to Defuturing. Sydney: University of South Wales Press, 1999, pp.1-17.
- Barabasi, Albert-Laszlo, “The Sixth Link: The 80/20 Rule”, in Linked: The New Science of Networks, Massachusetts: Perseus Publishing, 2002, pp.65-78.
- Barabasi, Albert-Laszlo, “The Seventh Link: Rich Get Richer”, in Linked: The New Science of Networks, Massachusetts: Perseus Publishing, 2002, pp.79-92.
- Varian, Hal, Intermediate Microeconomics, selections.