Innovation is recognized as a long-term economic driver subject to policies cutting across many domains. This course provides a conceptual and empirical foundation for understanding how innovation affects the economy, how economic forces in turn guide technological and market change, the implications of change, and how public policy can shape innovation both directly and indirectly. We examine the links between innovation, productivity, and growth; the role of incentives and market forces in allocating knowledge and talent; the management and financing of R&D; the role of patents; diffusion of technology; international trade and competitiveness; and policies concerning research, education, procurement, competition, and taxation. The goal is to enable students to understand how innovation is emerging as a dynamic force in business, politics, and policy in advanced economies and to engage constructively in shaping national/regional policies and strategy.

The course is team-taught to provide an interdisciplinary economic/legal/policy perspective that reflects the scope of current innovation policies. Students will write an issues paper early in the semester (20 percent of grade) and a term paper (60 percent). The term paper should present a current multidimensional perspective on some innovation policy question, or proposed reform, including evidence for and against its effectiveness, its relationship to other policies, institutional considerations, and policy design; or it should analyze the role innovation policy played in some major technological achievement. Class participation, including a short presentation of the planned term paper, will count for 20 percent of the grade.

Recommended for purchase, e.g. at the Coop or Amazon.Com, is F. M. Scherer, *New Perspectives on Economic Growth and Technological Innovation* (Brookings paperback: 1999; roughly $20 new). Among repeatedly used items available on the web are National Science Foundation, *Science and Engineering Indicators: 2010*; OECD, *Innovation Strategy: Getting a Headstart on Tomorrow* (2010). Hyperlinks for other items are included when available; other readings will be available at CMO in a readings packet.

**Calendar**

1. Jan 25  **Innovation and Its Consequences**
   National Science Foundation, *Science and Engineering Indicators: 2010*, overview
   F. M. Scherer, *New Perspectives on Economic Growth and Technological Innovation*, chapters 1-3 (pp. 1-48)

“Notes on Measuring Productivity Growth,” class handout.

2. Feb 1 **Does the Market Fail? The Case for Innovation Policy**


OECD *Innovation Strategy*, Chs 1-2


3. Feb 8 **National Perspectives on Innovation Policy**


Vernon Ruttan, *Technology, Growth, and Development*, 207-214


4. Feb. 14 **Science and the Linear Model**


National Science Foundation, *Science and Engineering Indicators: 2010*, ch. 5, overview

Donald Stokes, *Pasteur’s Quadrant*, chapter 3, pp. 58-89


OECD *Innovation Strategy*, Ch 5

5. Feb 21 **Human Capital**

F. M. Scherer, *New Perspectives on Economic Growth and Technological Innovation*, Chapter 6, 89-118

National Science Foundation, *Science and Engineering Indicators: 2010*, ch. 3, highlights, 3-6 to 3-8

Claudia Goldin and Lawrence F. Katz, *Transitions: Career and Family Life Cycles of the*
Samps Samila and Olav Sorensen, Non-compete Covenants: Incentives to Innovate or Impediments to Growth, DRUID Working Paper, 2010, 1-33
OECD Innovation Strategy, ch 3, 55-81

6. Feb 28 Industrial R&D
National Science Foundation, Science and Engineering Indicators: 2010, ch. 4, 50-58
F. M. Scherer, New Perspectives on Economic Growth and Technological Innovation, Chapter 5, 53-88
Henry Chesbrough, Open Innovation: A New Paradigm for Understanding Industrial Innovation, in Henry Chesbrough, Wim Vanhaverbeke and Joel West, editors, Open Innovation: Researching a New Paradigm, Oxford University Press, 2006

7. March 7 Sectoral Innovation
G.M. Peter Swann, The Economics of Standardization: An Update, 4-6, 9-19, 29-38
F. M. Scherer, Pharmaceutical Innovation, in Bronwyn H. Hall and Nathan Rosenberg, eds., Handbook of the Economics of Innovation, North Holland 2010
Erik Brynjolfsson and Adam Saunders, Wired for Innovation: How Information Technology is Reshaping the Economy, MIT Press 2009, pp 60-116

March 14 Spring Break

8. March 21 Venture Capital and Localization
National Science Foundation, Science and Engineering Indicators: 2010, ch. 6, 6-46 to 6-52
Annalee Saxenian, Regional Advantage: Culture and Competition in Silicon Valley and Route 128 (1994), chs 2-3, pp. 29-82
OECD Innovation Strategy, ch. 4

- National Science Foundation, *Science and Engineering Indicators: 2010*, ch. 4, 32-50

10. April 4. **The Patent System II**

- Michael Heller and Rebecca Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, *Science*, 1 May 1998,

11. April 11 **Globalization I**

- F. M. Scherer, International High-Technology Competition, pp. 9-23 and 173-181
- Andy Grove, How America Can Create Jobs, *Business Week*, July 1, 2010, [http://www.businessweek.com/magazine/content/10_28/b4186048358596.htm](http://www.businessweek.com/magazine/content/10_28/b4186048358596.htm)
- National Science Foundation, *Science and Engineering Indicators: 2010*, ch. 6

12. April 18 **Globalization II**

- Vernon Ruttan, *Technology, Growth, and Development*, 214-225

13. April 25 **Presentation of Papers (Paper due May 6)**
Suggested Issues Papers Topics and Due Dates
(Other topics can be substituted after conference)

February 8. Why did productivity growth in the Great Recession not slacken much, in contrast to past recessions?

February 8. Why, despite fairly robust productivity growth over the past three decades, have worker wages not risen in tandem?

February 15: Why in a free enterprise economy is government innovation policy required? A real-world illustration.

February 22: How should grant agencies choose the recipients of basic research-support funding: the peer review system, block grants to institutions, or some other method?

March 8: Is the United States experiencing a crisis in the supply of young, well-educated scientists and engineers?

March 22: How do decision-makers cope with uncertainty in their R&D support strategies?

April 12: Should the United States adopt a post-publication patent opposition system like that of European nations? Or, should the courts respond to proven infringement of patents only with the assessment of damages and not with injunctions against patent use?

April 19: What should U.S. policy makers do to regain a lead for U.S. companies in "green" electric energy technologies?