COURSE SUMMARY: The purpose of this course is to examine the factors that underlie the creation of new technologies and their dissemination throughout the economy. The discussion will cover issues of interest to new technology producers and users in the private business sector, universities and government. The main focus of the discussion will be the prevailing environment in developed market economies. Developing countries will be dealt with to some extent, more so if there is interest in the class. We will examine in some depth important global aspects of technology creation and dissemination and their historical extensions. We will also expand on issues of technology management in industry, universities, and government. And, of course, we will address the implications for policy.

COURSE REQUIREMENTS: The final grade will be based on a term paper and a take-home final examination. The term paper, due on November 30, will count for 60% of the final grade and the take-home final exam for the remaining 40%. The questions for the exam will be distributed the same day (Nov. 29). Your answers will be due a week later (Dec. 6). Class attendance, preparation and participation throughout the term are essential for two reasons: (a) they will improve performance and strengthen marginal grades; and (b) they will provide a very good incentive for regular studying of the long list of required readings.

COURSE READINGS: The assigned book for the course is:


This book, with survey articles written by some of the best academics in the field, closely follows the themes of the course. It is an excellent source of information that you will certainly consult for years to come. The book is available at Amazon.
We will also read several chapters from:


This is another good source of information, leaning towards technology management. It is unfortunately out of print. I will make available copies of the relevant chapters.

In addition, there is a significant number of other articles and book chapters in this syllabus. An unmarked reference indicates required reading. An asterisk indicates recommended reading. A WB indicates a reading available on the internet.

Required readings will be provided on request with the exception of those available on the web (WB indication). You should locate these and other relevant documents at the addresses:

http://www.oecd.org/dsti/sti/ (under “reports” and “free online documents”)
http://www.unctad.org
http://www.unido.org
http://www.aaas.org/spp/rd/rd09main.htm
http://www.ostp.gov/nstc

Recommended readings (asterisk) will not be provided.
**SCHEDULE OF MEETINGS AND READINGS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Reading</th>
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<tr>
<td>8/30</td>
<td><strong>COURSE INTRODUCTION</strong></td>
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<tr>
<td>9/6</td>
<td><strong>I. SCIENCE AND TECHNOLOGY AS ENGINES OF GROWTH</strong></td>
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<tr>
<td>9/13</td>
<td><strong>II. S&amp;T INDICATORS AND TECHNOLOGICAL COMPETENCE</strong></td>
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<td></td>
<td><strong>1. Early Roots to Maturity</strong></td>
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<td><strong>2. Current R&amp;D Efforts and Competitiveness</strong></td>
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<td>National Science Board <em>Science and Engineering Indicators 2010</em>, Arlington, VA: National Science Foundation [Chs: Overview, 4, 6, 8].</td>
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<td>[Overview]</td>
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<td>[8] “State Indicators”</td>
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<td>*WB American Association for the Advancement of Science <em>AAAS Report XXXVI: Research and Development FY2012.</em></td>
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*WB*
III. THE NATURE OF INVENTION AND INNOVATION

9/20

1. The Nature of Invention and Innovation


9/27

2. Basic and Generic (Pre-competitive) Research


[8] “Challenges for the Future”

[9] “Conclusions and Recommendations”


3. Applied Research and Development


IV. KEY ISSUES AFFECTING INNOVATION

10/4 Globalization/Internationalization of R&D


Linkages to External Sources of S&T Knowledge


Intellectual Property Protection


Lall, Sanjaya (2003) “Indicators of the Relative Importance of IPRs in Developing Countries”, Research Policy, 32: 1657-1680.


* National Research Council (2003) Patents in the Knowledge-Based Economy, National Academy Press. [chs. 8, 10]


10/25

Small Firms - Knowledge Entrepreneurship


Clusters


11/8 No Class

Science Parks/Cities, Technology Incubators, Venture Capital Financing


11/22

Systems of Innovation


The Knowledge-Based Economy


Policy Lessons


