

MC 492 – Political Economy of Innovation and Technological Development

Fall 2005 / M W 12:40-2:50 / Case Hall 319

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Course Overview and Objectives

This upper-level course in political economy examines the political, economic, and social challenges associated with innovation, technological progress and sustainable economic development, especially for developing and underdeveloped countries. This issue is of growing importance as countries look for ways to compete in a highly interdependent and increasingly complex global economy. And yet, as the need for technological capacity increases, the challenges to develop this capacity also increase. In particular, the ability of social actors, both public and private, to address challenges surrounding areas such as finance, education and training, research and development, and law—just to name a few—determines whether countries have the capacity to create, adopt, assimilate, and transfer technology within the local economy. Such capacities are necessary if local firms are to compete on the technological frontier or embed themselves into the production networks of multinational corporations.

This course assumes some basic knowledge of macro and microeconomics. Even so, while requiring students without such knowledge to work a little harder, it is possible to gain the needed background by reviewing or consulting an economic textbook throughout the course of study. We will begin by examining models of economic growth and development and the role of innovation and technology within these models. Next, we will examine several competing and complementary frameworks from which theoretical explanations of innovation and technological change and development are often generated. Finally, we will evaluate the application of these frameworks to technological development over time.

My hopes for this course are three-fold. First, and specifically, I hope you develop an appreciation for 1) the importance of technology and innovation for sustainable economic development; 2) the social, political, and economic challenges associated with developing innovatory and technological capacity (countries do not, and indeed often cannot, adopt new technologies, “just because they are available”; and 3) the policy and institutional options facing both public and private actors to resolve these challenges. Second, and more generally, I hope the course helps you develop skills in analysis and critical thinking, clear and compelling writing, and persuasive oral presentation. Finally, I hope these two things come together: an increased appreciation for the issues we deal with will shape your intellectual perspective, while, at the

same time, any skills you may gain or hone will help you succeed in the application of that perspective to whatever career path you choose.

Course Requirements

As a “senior seminar” this course will consist of some brief lecturing on my part, although the bulk of course time will be spent on class discussion of the readings and oral presentations. As part of the class discussion we will review (briefly), clarify, expand, and hopefully argue the readings. To facilitate this class format, students are expected to show up, do the assigned reading **BEFORE CLASS**, participate in class (which is obviously closely tied to showing up), and submit all assignments on time (I realize you’ve never heard any of this before). Please retain all graded, returned copies of any of your work until two weeks after the term ends. *Please note: all written assignments should be typed, double-spaced, 12-point font, 1-inch margins all around. Also, all paper assignments are due at the beginning of class on the specified day. Papers turned in after class on the same day are already one day late and, assuming late papers are accepted for that assignment, will be graded accordingly.*

Participation

This course relies heavily on individual participation. Your grade, however, does not depend on how much you talk (neither I nor anyone else is interested in listening to anyone talk for the sake of talking). Instead, I am interested in thoughtful contributions that exhibit some insight, opinion, or clarification that comes only from “wrestling” a little with the readings.

Since participation is so important, it is clearly necessary that everyone attend class. I do not, however, keep a roll of who attends and who does not. Instead participation will be measured through class memos and discussion questions and a reading analysis oral presentation.

Class Memos and Discussion Questions

You will be required to write a memo at least one page long (see above for formatting) for each class session in which you 1) summarize the big argument or point made in each reading and 2) provide at least one question, insight, or observation for discussion. These papers will be exchanged in class and read by a fellow student who will both grade the work and present the discussion question/observation/insight. Although there are 21 class periods for which you might write, only 18 are necessary for full credit. If you write all 21, I shall drop the three papers with the lowest grade when figuring your final course grade.

Discussant

Each of you will be required to be the discussant for one of your classmates formal, final presentation. This will require that you read the penultimate draft to which you are assigned and give oral critiques and feedback during class. Your role as discussant should be to kick off discussion about the project in the class and should take roughly 10 minutes.

Research Project

Learning to research a topic that is of interest to you and then reporting the results of that research in a well-written, well-supported and persuasive fashion is a major objective of this course. Therefore, the biggest single determinant of your grade for this course will be a research

project in which you will identify an interesting and important question, research earlier work addressing your question, develop hypotheses to explain your chosen puzzle, and formulate a research design and methodology to evaluate your hypotheses. Whether you can actually test your hypotheses depends heavily on the data required. But even if testing is not possible, you should provide the highest quality of evidence possible to at least support the plausibility of your hypotheses. In addition, in keeping with other objectives of this course, you will also have an opportunity to orally present your project to the class. Since a large research project is often overwhelming when tackled all at once, we shall divide it into distinct phases, each worth a portion of the project's final grade.

1. Formal project proposal

- a. Meet with me by September 9th to choose a topic
- b. Turn in your initial project proposal on September 19th. It should be 4-6 pages and include a topic, main question, hypothesis, proposed methodology, preliminary evidence, and beginning bibliography.
- c. Make a 5-minute oral presentation of your project on September 21st. **DO NOT JUST READ YOUR PROPOSAL. IF YOU READ YOUR PROPOSAL YOU WILL LOSE ALL THE POINTS FOR THIS PHASE.**
- d. You should write the proposal as an introduction to your paper.
- e. The proposal and presentation are worth 10% of your grade. Late proposals will be docked a half a number grade per day late (ie 3.5 to a 3).

2. Literature Review

- a. **THIS IS NOT AN ANNOTATED BIBLIOGRAPHY!**
- b. The point of a good literature review is to position your work in the existing body of literature. What have others written and why is it insufficient? In other words, why is your work important? This can only be established by reviewing the existing literature **AS IT BEARS ON YOUR THESIS.**
- c. Should be 7-10 pages in length not including the bibliography.
- d. Should be drawn from at least 15 sources, 8 of which must come from scholarly journals or books.
- e. This phase will be incorporated into your paper as the literature review.
- f. Due on October 5th.
- g. The literature review is worth 10% of your grade. Late proposals will be docked a half a number grade per day late.
- h. **IT IS NECESSARY TO COMPLETE THIS AND ALL SUBSEQUENT PHASES IN ORDER TO PASS THE COURSE, EVEN IF NO POINTS ARE AWARDED.**

3. Methodology/Data Section

- a. Turn in a section in which you outline your proposed methodology/research design.
- b. Due October 19th.
- c. Include in this section the data you will use to analyze your project. If you are using qualitative methods, describe what evidence you will need and how you will use it to establish your claims/arguments.
- d. Talk about the methods you will use to answer your question. How will they provide control for your explanation? Why is your method better than others?
- e. The methodology/data section is worth 10% of your grade. Late proposals will be docked a half a number grade per day late.

4. Oral Presentation

- a. Each of you will give a 30-minute presentation on your project, the puzzle that motivated your research, the major works and conclusions of others on the subject, how your study fits in the existing literature, your hypotheses and proposed research design and methodology and, if possible, any findings.
- b. The presentation will be worth 10% and will be graded for both content and style (my subtracting pen goes crazy whenever I hear “like” and “really”).
- c. You must sign up for a day for your presentation. Presentations will be given on the last six class periods.

5. Penultimate Draft

- a. Turn in a penultimate draft on November 16th.
- b. *You must turn in a penultimate draft before you make your oral presentation.*
- c. The draft is worth 10%. For every day the draft is late you lose $\frac{3}{4}$ of a grade (ie 3.5 to 2.75).

6. Final Paper

- a. Turn in a final draft before 12:45 p.m. on December 15th.
- b. This draft should be 22-27 pages, not including bibliography.
- c. The final paper is worth 20% of your grade. I will accept no late final papers.
- d. Please see “Criteria for an A Paper,” at the end of the syllabus.

Grading

Participation

Memos and Discussion Questions	15%
Discussant Role	10%

Research Project

Formal Proposal and Presentation	10%
Literature Review	10%
Methodology/Data Section	10%
Oral Presentation	10%
Rough Draft	15%
Final Version	20%

Readings*Books*

Please purchase the following books:

- William Easterly, *The Elusive Quest for Growth* (MIT Press, 2001). ISBN: 0-262-55042-3
- Basalla, George. 1986. *The Evolution of Technology*. Cambridge University Press. ISBN: 0521296811
- William Greider, *One World, Ready or Not: the manic logic of global capitalism*. New York: Simon and Schuster. ISBN:0684835541
- Kim, Linsu and Nelson, eds. *Technology, Learning and Innovation*. Cambridge: Cambridge University Press. 0521779871

Additional Course Readings

Instead of a course pack, I have put additional readings on reserve in the Madison Library.

Electronic Readings

Many of the readings will be available on-line through the MSU Library's website using your pilot account (although you are encouraged to at least be familiar with the library and how to find the original printed versions). The library page to access is:

<http://magic.lib.msu.edu/screens/opacmenu.html>

Course Outline

Course Outline

Date	Class No.		T=Textbook W=WWW MR = Madison Reserve UR = MSU Library Reserve A = Angel Class Web Site CP = Course Pack
8-29	1	Introduction: Society and Technology <ul style="list-style-type: none"> • Langdon Winner, 1986. ch. 1. • Easterly, Ch. 1 <i>Recommended Reading:</i> <ul style="list-style-type: none"> • 	MR T
Part I. The Role of Technology in Economic Development			
8-31	2	The Perceived Wisdom of Technology and Development <ul style="list-style-type: none"> • Easterly, Chapter 2, 5, 6 <i>Recommended:</i> <ul style="list-style-type: none"> • Solow, Robert. 1957. "Technological Change and the Aggregate Production Function." <i>Review of Economics and Statistics</i>. Vol. 39 (1957): pp.312-320. • Olson, Mancur. 1965. <i>The logic of collective action; public goods and the theory of groups</i>. Cambridge: Harvard University Press. • David Mowery and Nathan Rosenberg. 1989. "A new framework for research and development: analysis and policy implications." In <i>Technology and the Pursuit of Economic Growth</i>. New York: Cambridge University Press. • Chris Freeman and Luc Soete. 1997. "Introduction." <i>The Economics of Industrial Innovation</i>. Cambridge: The MIT Press. 	T
9-5	Labor Day Weekend Holiday, No School		
9-7	3	The Endogenous Growth Model <ul style="list-style-type: none"> • Easterly, Chapter 3, 8, 9 • Paul Krugman, "The Myth of Asia's Miracle," <i>Foreign Affairs</i>, 73, November/December (1994): p62. [Proquest: search by word, type title, select backfile.] <i>Recommended:</i> <ul style="list-style-type: none"> • Paul M. Romer. 1990. "Endogenous Technological Change." <i>The Journal of Political</i> 	T W

Economy, Vol. 98, No. 5, Part 2: The Problem of Development: A Conference of the Institute for the Study of Free Enterprise Systems. (Oct., 1990), pp. S71-S102.

- Grossman, Gene M. and Elhanan Helpman. 1990. "Comparative Advantage and Long-run Growth." *The American Economic Review*. 80 (No. 4, September 1990): 796-800.
- Lucas, Robert E., Jr. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics*. July, 22:1, 3-42.
- Paul M. Romer. 1986. "Increasing Returns and Long-Run Growth." *The Journal of Political Economy*, Vol. 94, No. 5. (Oct., 1986), pp. 1002-1037.
- Grossman, Gene M. and Elhanan Helpman. 1991. *Innovation and Growth in the Global Economy*. Massachusetts: MIT University Press.

9-12 **4** Tacit vs. Explicit knowledge
 • Bijker, ch. 2 pp 19-99. MR

Part II: Where does technology come from and how is it modified?

9-14 **5** Diversity
 • Basalla, ch 1,2 T
Recommended:

9-19 **6** **Research Proposals Due**
 Novelty
 • Basalla, ch 3,4 T
Recommended:

9-21 **7** **Proposal Presentations**
Recommended:

9-26 **8** Selection and New to whom?
 • Basalla, ch. 5,6,7 T
 • Movie: "The Gods must be Crazy"
 • Nelson and Rosenberg, ch. 1. MR
Recommended:

9-28 **9** Politics and Development
 • Baum and Lake, "The Political Economy of Growth: Democracy and Human Capital." MR
Recommended:

10-3 **10** Governments and Corruption
 • Easterly, Chapters 11 and 12 T
Recommended:

10-5 **11** **Literature Review Section Due**
 Institutional Systems – Production Regimes and Innovation Systems
 • Kitschelt, et. al. 1999. Convergence and divergence in advanced capitalist democracies." MR
 • David Soskice. 1999. "Divergent Production Regimes: Coordinated and Uncoordinated Market Economies in the 1980s and 1990s." in Kitschelt, et. al., eds., *Continuity and Change in Contemporary Capitalism*. Cambridge: Cambridge University Press. MR
 • Michael Hobday. 2000. "East versus Southeast Asian Innovation Systems: Comparing OEM- and TNC-led Growth in Electronics. In Kim and Nelson, eds. *Technology, Learning and Innovation*. Cambridge: Cambridge University Press. T
Recommended:

10-10	12	Institutions <ul style="list-style-type: none"> Stanley Engerman, Stephen Haber and Kenneth Sokoloff, "Inequality, institutions and differential paths of growth among New World Economies," in Claude Menard ed., <i>Institutions, Contracts and Organizations: Perspectives from New Institutional Economics</i> (Edward Elgar, 2000), pp. 108-131. <i>Recommended:</i> <ul style="list-style-type: none"> 	MR
10-12	13	Nationalism and Technological Development <ul style="list-style-type: none"> Samuels, Richard J. 1994. "Chapter 2". <i>Rich Nation, Strong Army: national security and the technological transformation of Japan</i>. Ithaca: Cornell University Press. <i>Recommended:</i> <ul style="list-style-type: none"> Anderson, Benedict. 1998. Chapters 1-3. <i>The Spectre of Comparison: Nationalism, Southeast Asia, and the World</i>. London: Verso. 	MR
10-17	14	Globalism and Technological Development <ul style="list-style-type: none"> Easterly, Chapter 7. Geert Duysters and John Hagedoorn. "International Technological Collaboration: Implications for Newly Industrializing Economies." In Kim and Nelson, eds. <i>Technology, Learning and Innovation</i>. Cambridge: Cambridge University Press. <i>Recommended:</i> <ul style="list-style-type: none"> Mathews, John A. 1999. "A Silicon Island of the East: Creating a semiconductor industry in Singapore." <i>California Management Review</i>. Berkeley. Winter 1999. 	T T
10-19	15	Methodology/Data Section Due	
		Distributive Preferences and Technological Development <ul style="list-style-type: none"> Sachs, Jeffrey D. and Andrew M. Warner. 1995. "Natural Resource Abundance and Economic Growth." <i>Harvard Institute for International Development</i>. Development Discussion Paper No. 517a. October, 1995. Ross, Michael L. 1999. "The Political Economy of the Resource Curse." <i>World Politics</i>. Vol. 51 (January), pp. 297-322. <i>Recommended:</i> <ul style="list-style-type: none"> 	MR W
10-24	16	Distributive Preferences and Technological Development, cont <ul style="list-style-type: none"> Michael Shafer. 1997. "The Political Economy of Sectors and Sectoral Change: Korea Then and Now." In Ben Schneider and Sylvia Maxfield, eds., <i>Business and the State in Developing Countries</i>. Ithaca: Cornell University Press. <i>Recommended:</i> <ul style="list-style-type: none"> 	MR
10-26	17	Skills Development <ul style="list-style-type: none"> Easterly, Chapter 4. Thelen, Kathleen and Ikuo Kume. 1999. "The Rise of Nonmarket Training Regimes: Germany and Japan Compared," <i>Journal of Japanese Studies</i>, 25:1 (1999), pp. 33-64. <i>Recommended:</i> <ul style="list-style-type: none"> 	T MR
10-31	18	Research and Development <ul style="list-style-type: none"> Howard Pack. 2000. "Research and Development in the Industrial Development Process." In Kim and Nelson, eds. <i>Technology, Learning and Innovation</i>. Cambridge: Cambridge University Press. Metcalfe, J.S. 1995. "Technology systems and technology policy in an evolutionary framework." <i>Cambridge Journal of Economics</i>. Vol 19, pp.25-46. <i>Recommended:</i> <ul style="list-style-type: none"> 	T MR

Part III: Perspective, Historical, Current and Future

11-2	19	Asian vs. South American Development	
		<ul style="list-style-type: none"> • <u>Film: Big Business and the Ghost of Confucious (The Pacific Century)</u> • Sanjaya Lall. 2000. "Technological Change and Industrialization in the Asian Newly Industrializing Economies: Achievements and Challenges." In Kim and Nelson, eds. <i>Technology, Learning and Innovation</i>. Cambridge: Cambridge University Press. • Jorge Katz. 2000. "The Dynamics of Technological Learning during the Import Substitution Period." In Kim and Nelson, eds. <i>Technology, Learning and Innovation</i>. Cambridge: Cambridge University Press. 	T T
		<i>Recommended:</i>	
11-7	20	"One World"	
		<ul style="list-style-type: none"> • Greider Chapters 1-3, pp. 11-56 	T
		<i>Recommended:</i>	
11-9	21	"Desperate Enterprise"	
		<ul style="list-style-type: none"> • Greider Chapters 4-10, pp. 57-226 	T
11-14	22	"Manic Capital and the Social Questions"	
		<ul style="list-style-type: none"> • Greider Chapters 11-14, pp. 227-332 • Greider Chapters 15-19, pp. 333-473 	T
		<i>Recommended:</i>	
11-16	23	Penultimate Drafts Due	
		Final Thoughts: Technology and Society	
		<ul style="list-style-type: none"> • Winner, Langdon, Ch.10 (The whale and the reactor) • Winner, Langdon Ch. 7 (autonomous technology) • Easterly 10, 13, 14 	MR MR T
11-21	24	<u>Presentations</u>	
11-23	25	<u>Presentations</u>	
11-28	26	<u>Presentations</u>	
11-30	27	<u>Presentations</u>	
12-5	28	<u>Presentations</u>	
12-7	29	<u>Presentations</u>	

Final Paper Due at Thursday December 15th @ 12:45 p.m.

Criteria for an “A” Paper

(Adapted from Rick Doner and Joanne Brzinski, Emory University, 1999)

What is written without effort is in general read without pleasure – Samuel Johnson.

Topic/Argument: A strong paper is one that goes beyond describing a phenomenon and poses a puzzle for explanation. Why did the United States play such a major role in the creation of the post-war international trade and monetary systems? What has been the role of the Japanese Ministry of International Trade and Industry in helping declining industries? What have been the consequences of the changes in Japan’s electoral system? In posing a puzzle, it is useful to keep a few things in mind. One is the utility of identifying competing explanations and positioning yourself within the debate. The second is the importance of asking a question where you can find evidence to build an argument. The third is that you will probably not be able to make an airtight case for one side or the other. That is fine. Just be clear as to where your evidence is weak and what kind of information you would need to make a stronger argument.

Structure: The introduction 1) identifies the basic question, puzzle, objective of the paper; 2) tells the reader why the topic is important in terms of policy, theory, and/or class themes; 3) briefly presents the paper’s basic argument; 4) lays out how the author intends to proceed (i.e., identifies the paper’s overall structure). A long paper should have clear sections and headings (and maybe subheadings). For both short and long papers, there should be a clear set of points that relate to the puzzle you have identified. Transitions between sections are clear. The conclusion should summarize basic arguments and evidence, relate the paper to the course, and offer something that is new or different relative to the existing literature.

Evidence: Your arguments must be backed up by empirical evidence. The paper should acknowledge situations where evidence is not available. You will need to look at both scholarly literature on an issue and empirical information about it. Your evidence must be fully referenced throughout the paper.

Sources: You should use at least 10 sources and not rely on class texts. Your sources should be varied. You should use scholarly journal articles and books. Use the various research databases (e.g. ABCPoliSci, ABInform, Nexis, JSTOR) to find relevant journal articles. Newspapers, magazines, and journals are useful sources of information as well. On-line resources are very useful, but use them primarily to supplement rather than replace more traditional sources. Official sources (e.g., government, international organization web pages, government documents) are appropriate to use. However, there are some instances where student work or personal comments are posted on the web. These sorts of sources should be avoided.

Bibliography: Bibliographic and end/foot/internal note citations must be correct and consistent, not only for books and articles, but for web-based evidence as well. The following volumes, available at both the Madison and MSU libraries, can help:

- The Chicago Manual of Style: The Essential Guide for Writers, Editors, and Publishers. 14th edition. Chicago: University of Chicago Press, 1993.
- Gibaldi, Joseph. 1999. *MLA Handbook for Writers of Research Papers*. 5th edition. New York: The Modern Library Association of America.
- Turabian, Kate. 1996. *Manual for Writers of Term Papers, Theses and Dissertations*. 6th edition. Chicago: University of Chicago Press.
- For citing materials from the World Wide Web, please refer to [URL:http://www.ipl.org/ref/QUE/FARQ/netciteFARQ.html](http://www.ipl.org/ref/QUE/FARQ/netciteFARQ.html)

Grammar/Spelling: Close to perfect. A few isolated errors are OK, but any patterns of error are not. These might include subject-predicate disagreement; confusing their/there, its/it’s etc.; non-sequiturs; run-on sentences. Paragraphs and sentences should be relatively short. Try to avoid repeating mistakes in later papers that have been identified in earlier ones.

Relevance to the Course: Papers should apply appropriately the ideas from the readings and class discussions.