

PSCI 685: Managing Global Prosperity

Fall 2009

Time: Wednesdays 12:30 – 3:20 p.m.

Prof. Carin Holroyd

Office Hours: Tuesdays 11 – 12:30

Wednesdays 10-11:30

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This course examines one of the most important national and international challenges of the 21st century: the ability of governments to develop and sustain policies for economic innovation and international competitiveness. From Africa to Ireland and from Canada to Japan, national and sub-national governments wrestle with the difficult problems associated with promoting commercial innovation and creating an environment for scientific and technological competitiveness. Governments uniformly accept the idea that the combination of research and commercialization are essential elements in national prosperity. This class, while covering Canadian developments in some detail, will examine the broad international, theoretical and conceptual questions surrounding national innovation strategies and implementations.

Course Goals: This class is built around the following objectives:

- To introduce students to the key ideas and thinkers in the field of national innovation and global competitiveness strategies;
- To help students understand the importance of international comparisons and global realities as an essential element in determining appropriate national responses;
- To ensure that students understand the issues, questions, opportunities and challenges associated with global competitiveness and innovation strategies;
- To encourage careful and accurate reading of course materials;
- To encourage students to exchange ideas freely and comfortably in a seminar setting and to support independent and critical thinking about the main ideas under discussion;
- To guide students in the preparation of a well-researched and thoughtful report on specific countries, to assist with the development of an effective presentation, and to help students prepare an appropriate final report on this subject;
- To illustrate to students the continuing importance of government policies in shaping national economic and social opportunities and to emphasize the connections between research, science, technology, commercialization, regional planning and national leadership in this important area.

Mark Distribution: The final grade in the class is determined on the following basis:

Presentation of weekly readings	25%	
Class Participation	25%	
Presentation	25%	
Take Home Final	25%	(due on December 10th)

Course Requirements and Assignments: This class has the following requirements:

N.B. Some adjustments may be made depending on the number of students enrolled.

Article Presentation: Each student will present one article and one set (ie a set equals one week's worth of articles) of readings. For each of the readings, outline the main points of each article and some of the questions these articles raise. The readings summary should cover the following:

- Main points and arguments in each paper
- Fit between each of the articles and the broader national innovation literature
- Primary contributions to scholarship
- Policy issues raised by the authors
- Questions or concerns about the ideas, research and conclusions in the paper

Seminar Participation: Students are expected to come to all classes and will be graded on both the extent and quality of their contributions to the course. The assigned readings should be read closely before the class and students should come prepared to discuss the information that they have examined. Remember, incidentally, that a critical reading of an article does not necessarily mean a negative assessment. One can read an article very closely and come away with many questions and still like the article a great deal. To best prepare for the seminar discussions, students should make notes in each of the following areas for the articles under review:

- What are the main ideas or arguments in the article?
- How did these arguments change or affect your understanding of national innovation and competitiveness strategies?
- What aspects of the article did you like or not like? Did the author convince you about their main point(s)?
- What questions did you have about the material covered (or not covered) in the article?

Country Presentation: There will be a two week research period in the course. During this time, the instructor will be available in her office to work with individual students. Students will undertake a thorough examination of the national innovation policies in two countries (not in the same region - North America, South America, Europe, South Asia, East Asia and Africa). This class should consist of the following:

- A powerpoint presentation (30 to 50 minutes) that reviews developments in the two countries. The presentation will be followed by questions.
- An assigned reading for each country that covers a major theme in national innovation as practiced in that country. (The readings must be cleared with the

instructor at least one week before the course.). The student will lead the class discussion on these articles.

- The class discussion will end with a consideration of the general value and utility of the specific policy initiatives and political aspects of national innovation strategies. The class discussion will also compare and contrast the national innovation strategies in the two countries.

Students will submit a printed copy of the PowerPoint presentation on the day of the class. The submission should include a comprehensive bibliography of materials used in the preparation of the report. Materials should include, as applicable, such items as scholarly assessments of national innovation strategies in the target country, relevant government policy statements and legislation, internal and external program reviews, statistical analyses, international comparisons and evaluations, and journalistic descriptions and/or evaluations of the policies.

Students will select one of the following countries (each country can be used only one time):

- **Nations:** Philippines, Vietnam, India, China, Brazil, Finland, Botswana, Nigeria, Mexico, South Korea, Taiwan, Sweden, Norway, Iceland, Israel, United Arab Emirates or other country, with the permission of the instructor.

The review of national innovation will, at a minimum, cover the following aspects:

- **Current competitiveness and global standing** – GDP per capita, competitiveness standing, issues of corruption and trustworthiness, patents, major economic sectors, patterns of international trade and investment.
- **Infrastructure for innovation** – education/post-secondary education, availability of investment/risk capital, major government investments in innovation facilities, status of universities and colleges.
- **National and sub-national innovation strategies** -- particularly policies supporting scientific and technological research, commercialization of science and technology, and the development of internationally competitive industrial and service sectors.
- **Challenges, opportunities and prospects** – a review of the major issues relating to national innovation and commercialization, including an assessment of potential barriers to success, areas of likely international competitiveness, and areas requiring specific attention or government policy.
- **Ideological or theoretical foundations of the national policies** – a comment on the intellectual origins (if identifiable) of the national policies in the field. Some jurisdictions have followed very closely the ideas of specific thinkers (ie. Michael Porter); others have developed their policies with a particular ideological or theoretical slant.

Final Examination (Take Home): In November, students will be given the questions for the take-home examination. Students will be required to submit the examination answers on or before the due date of December 15th. Note: because the questions are provided in advance and because students have an opportunity to work on the material outside an examination setting, there are high expectations for the quality of the answers. In particular, students are expected to demonstrate in their answers that they have understood the arguments in the readings and that they are able to draw conclusions from both the seminar discussions and the student presentations. The best answers will show the ability to assimilate both the conceptual and theoretical perspectives from the academic articles and the country details provided in the in-class presentations.

Academic Integrity:

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

Academic Integrity website (Arts):

http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html

Academic Integrity Office (UW): <http://uwaterloo.ca/academicintegrity/>

Accommodation for Students with Disabilities:

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

Weekly Seminar Outline: Students are required to complete the readings before each seminar (see the note above). Most of the articles are available online through the University of Waterloo system. Book chapters and those articles not online will be on reserve in the Dana Porter Library. To view the online versions of the articles, go to the main page of the Dana Porter Library website. Type a portion of the title into the Journal Article quick search and hit enter. Follow the links to the full-text copy of the articles.

September 16, 2009 - The Innovation Imperative

- Introductory lecture on national innovation strategies

September 23, 2009 – National Innovation: Background Theory

- Chris Freeman, Technology Policy and Economic Performance: Lessons from Japan (London: Pinter Press, 1987) – Introduction and Summary
- Bengt-Ake Lundvall, editor, National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning (London: Pinter Press 1992). Introduction
- Henry Etzkowitz, The Triple Helix: University-Industry-Government Innovation in Action (New York: Routledge, 2008) – Introduction and Chapter 9.
- OECD, National Innovation Systems 1997

September 30, 2008 – National Innovation Systems: The readings for this week provide general overviews of national innovation systems and focus, in particular, on the assessment and evaluation of innovation.

- Markus Balzat and Horst Hanusch, “Recent Trends in the research on national innovation systems,” *Journal of Evolutionary Economics*, Spring 2004.
- Chris Freeman, “Continental, national and sub-national innovation systems – complementarity and economic growth,” *Research Policy* 31 (2002).
- Hariolf Grupp and Mary Ellen Mogege, “Indicators for national science and technology policy: How robust are composite indicators?,” *Research Policy* 33 (2004).

October 7, 2009 – Innovation “Miracles”:

This week, the class will look at several leading examples of successful national innovation systems. The first article (Holroyd and Coates) is on reserve in the Dana Porter Library.

- Carin Holroyd and Ken Coates, “Japan’s Innovation Strategies,” *Innovation Nation: Japanese Science and Technology Innovation in the 21st Century*, Palgrave MacMillan 2007.
- G. Parayil, “From “Silicon Island” to “Biopolis of Asia:” Innovation policy and shifting competitive strategy in Singapore,” *California Management Review* (winter 2005), vol.47, no.2, pp.50-73, Winter 2005.
- Enterprise Ireland, *Ireland Economic Profile*, 2007 (<http://www.enterprise-ireland.com/NR/rdonlyres/D0465343-2D1D-43F8-B722-8F620055A4D6/0/EconomicProfileAug06.pdf>)

October 14, 2009 – Regional Economic Development and Innovation: There is a growing sense among analysts of national innovation that regions provide the most

effective focus for innovation strategies. The readings this week examine the role of sub-national and regional governments in promoting national innovation.

- S. Chung, “Building a national innovation system through regional innovation systems,” *Technovation* 22 (2002).
- Michael E. Porter, “Clusters and the New Economics of Competition,” *Harvard Business Review*, Nov/Dec 1998, Vol. 76, Issue 6.
- Maryann P. Feldman, “Where Science Comes to Life: University Bioscience, Commercial Spin-offs, and Regional Economic Development,” *Journal of Comparative Policy Analysis: Research and Practice* 2.
- David Charles, “Universities as key knowledge infrastructures in regional innovation systems,” *Innovation the European Journal of Social Science Research*, March 2006.

Or

Peter Bradwell, *The Edgeless University*, Demos, 2009.

http://www.demos.co.uk/files/Edgeless_University_-_web.pdf?1245715615

October 21, 2009 – National Innovation and Developing Countries

- Urmas Varblane, David Dyker, Dorel Tamm, “How to Improve the National Innovation Systems of Catching Up Economies?”, *TRAMES*, 2007 (11(61/56), 2, 106-123
- Christopher Freeman, “Technology Gaps, International Trade and the Problems of Smaller and Less-Developed Economies” in *Small Countries Facing the Technological Revolution*, edited by Christopher Freeman and Bengt-Ake Lundvall (London: Pinter Publishers, 1988)
- Stephen Feinson, “National Innovation Systems Overview and Country Cases”,
- Lakhwinder Singh, “Globalization, national innovation systems and response of public policy”, MPRA (Munich Personal RePEc Archive) PPer No. 641, November 2006

October 28, 2009 – Canada and Innovation: The readings this week explore aspects of Canadian innovation strategies and reveal the combination of optimism and frustration that surrounds the development of effective competitiveness strategies in Canada. The report, “The State of Science and Technology in Canada,” represents the Government of Canada’s attempt to identify areas of commercial opportunity for the country.

- Anne Golden, “Canada – Reversing the Slow Slide,” *Policy Options*, April-May 2006.
- Robin V. Sears, “Bridging the Political Productivity Gap,” *Policy Options*, July-August 2007.
- Committee on the State of Science and Technology in Canada, *The State of Science and Technology in Canada: Summary and Main Findings*, (<http://www.scienceadvice.ca/documents/Summary%20and%20Main%20Findings.pdf>)
- Alison Bramwell, Jen Nelles, David Wolfe “Knowledge, Innovation and Institutions: Global and Local Dimensions of the ICT Cluster in Waterloo, Canada”, *Regional Studies*, volume 42, Issue 1, February 2008.

November 34, 2009: Research Period

November 11, 2009: Research Period: Instructor will schedule individual meetings (1/2 hour) with students

November 18, 2009: Presentations:

November 25, 2009: Presentations and Innovation in Waterloo Region Discussion (Guest Lecturer):

December 2, 2009: Concluding Thoughts and Perspectives: This class will conclude the class by providing an overview of the national innovation theme and by looking at options and possibilities for expanding the debate. The class will, in particular, discuss the degree to which Canada is likely to remain competitive in the 21st century and will consider appropriate policies for national and regional innovation given the nature of the global environment.

- Tom Kent, "Investing in Human Capital to Secure Canada's Role in the Global Economy," *Policy Options*, February 2005.
- Simon Brault, "The Arts and Culture as new engines of economic and social development," *Policy Options*, March-April 2005.
- Richard Gold, "Innovation and Productivity: The need for an intellectual architect," *Policy Options*, October 2006.
- Christopher Hill, "The Post-Scientific Society", *Issues in Science and Technology*, Fall 2007.