RUTGERS UNIVERSITY
RUTGERS BUSINESS SCHOOL Ph.D. PROGRAM

GRADUATE COURSE IN CORPORATE INNOVATION AND
INTERNATIONAL BUSINESS
RBS Course Code 26:553:604:01
DGA Course Code 26:478:593:01

COURSE CONVENOR: PROFESSOR J.A. CANTWELL

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Spring Semester 2016

Class Program and Reading List
Course outline description, and requirements of students

An outline description of the course in Corporate Innovation and International Business:

This course shows how the multinational firm depends critically on its technological and related skills to achieve its central strategic objectives. Introductory classes consider the determinants and characteristics of corporate technological change, and the linkages between science and technology, and the consequences of their geographical localization for international business. Then we assess the contention that corporate strategy should include a strategy for managing innovation, the purpose of which is deliberately to accumulate and exploit firm-specific knowledge. The course examines the implications of technological change as a learning process, for inter-company technology-based alliances, for international technology transfer, and for capturing the returns to innovation in the multinational firm. The innovative records of large and small firms are compared. The use of corporate patent statistics is appraised as a means of measuring patterns of innovation at the firm level. The course concludes with a discussion of systems of innovation, and of technology policies.

Requirements of students on the course:

1. To attend all weekly classes, and any other additional lectures as may be advised from time to time. The weekly classes are to be held on Tuesdays from 1pm to 3.50pm, and the full schedule is set out below.

2. To complete a term paper by the end of the Spring semester, to be submitted in week 15 (by Monday, May 2nd). Term papers should not normally exceed 2,500 words of text (the bibliography is not part of this word count). The title for the term paper must be chosen from the titles given below, each associated with a particular class topic (from topics 2-11; it is not possible to write on topic 1, which is a background introduction). The term paper must demonstrate an understanding of the issues raised in the relevant lecture, and make reference to the readings set for that topic. The term paper must answer the question set, with reference to the key themes of the course articulated in the lectures and readings. It is not to be treated as an independent research paper. All students should read the chapters and articles indicated in the lists below, whether or not they are writing their term paper on that topic. The course has been designed as an integrated treatment of the subject with underlying connections between topics. The term paper should therefore also demonstrate an appreciation of how the answer to a specific question on a given topic fits into the broader context of the course. The course must not be regarded as a set of 11 separate topics that can be treated in isolation from one another. Thus, while students are welcome if they wish to undertake additional reading on the topic of their term paper, this must be related to or used to critique the central themes of the course in the term paper.
Any such extra readings should not be used in the term paper merely to provide some other alternative essentially unrelated approaches to the topic, and in particular additional readings on a specific topic must not be regarded as a potential substitute for undertaking (and where they are relevant, referring to) the readings for other topics that are also part of the course. To reiterate: a term paper should answer the question set so as to (i) incorporate understandings derived from all the readings for the relevant topic and from the lecture on that topic, (ii) incorporate reference to other selected readings required in the course, and to general themes that recurred at various stages during the classes, and (iii) should only incorporate other references not included in the readings for the course to the extent that these help build upon and consolidate (but not detract from) the key themes and content of the course.

3. For Ph.D. students, and selected M.S. students, to give a presentation on their chosen topic to the class towards the end of the semester, prior to the submission of the paper itself at the end of the semester. Presentations can last for a maximum of 15 minutes when given by just one student, and for a maximum of 20 minutes when a joint presentation is given by two or more students (the allotted time then being divided equally between them). Presentations are to be prepared in PowerPoint, and to ensure that the necessary time limits are observed they must be contained in a maximum of 12 slides per student for a lone presenter or 8 slides per student in the case of joint presentations (excluding a title slide, if there is one), and all the text of each slide must be in at least a minimum font size of 24. Any presentation that does not conform to these guidelines may be stopped before it is completed. A hard copy of the slides to be used is to be given to the course convenor prior to the oral presentation. Topics will be allocated in week 1 (January 19\textsuperscript{th}), and presentations will be scheduled for specific slots during the classes in weeks 13 or 14 (April 12\textsuperscript{th} or April 19\textsuperscript{th}). Where students give presentations, assessment will be 25\% for the presentation, and 75\% for the paper.

4. Those students that will give presentations are expected to consult the class materials for their topic ahead of the session to be held on that topic, and to prepare some questions on the lecture in order to begin a class discussion once that week’s lecture has been completed.
Class topics

1. Establishing corporate technological competence as an evolutionary process.
2. The determinants of corporate technological change.
3. The role of science in technology, and the localization of science-technology linkages.
4. The changing motives for internationalization of technological activity, with the emergence of multinational company networks.
5. Alternative approaches to corporate technology strategy.
6. Inter-firm technological cooperation and international technology transfer.
7. Comparing innovation in small and large firms.
8. The connection between the internationalization and diversification of corporate technology.
9. Capturing the returns to innovation in the multinational firm.
10. The measurement of technological change: the use of corporate patent statistics.
11. National systems of innovation, institutions and technology policy.
Detailed topic schedule, outlines and reading lists

Week 1, January 19th

1. Establishing corporate technological competence as an evolutionary process.

   (An introduction pertinent to each of the remaining topics; students should treat this as essential background material, but there is no term paper corresponding to this topic.)


Week 2, January 26th

2. The determinants of corporate technological change.

   Paper Title: Describe and comment on Schmookler's analysis in support of "demand-pull" explanations of technical change.


   Mowery, D. and Rosenberg, N. (1979), "The influence of market demand upon innovation: a critical review of some recent empirical studies", Research Policy,


Week 3, February 2\textsuperscript{nd}

3. The role of science in technology, and the localization of science-technology linkages.

**Paper Title**: Assess the links between science and technology, and the implications of their geographical localization.


Week 4, February 9\textsuperscript{th}
4. The changing motives for internationalization of technological activity, with the emergence of multinational company networks.

**Paper Title:** Outline the conditions for the internationalization of corporate technological development. Discuss whether the motives for such internationalization have changed recently, and if so how.


**Week 5, February 16th**

5. Alternative approaches to corporate technology strategy.

**Paper Title:** Compare and contrast the rationalist and the incremental approaches to corporate technology strategy.


Week 6, February 23rd

6. Inter-firm technological cooperation and international technology transfer.

   Paper Title: Examine the implications of technological change as a corporate learning process for technology-based alliances between firms, and for international technology transfer.


Week 7, March 1st
7. Comparing innovation in small and large firms.

   **Paper Title:** Discuss the circumstances under which small firms are most likely to be relatively strong innovators.


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Week 8, March 8\(^{th}\)

8. The connection between the internationalization and diversification of corporate technology.

   **Paper Title:** In what ways has the relationship between the internationalization and diversification of corporate technology changed recently?


Week 9, March 15th

Spring recess week, no class.

Week 10, March 22nd

9. Capturing the returns to innovation in the multinational firm.

   **Paper Title:** Explain how the capabilities-based or competence-based approach to the multinational firm complements the contract-based approach, and how the capabilities-based approach suggests a different way of understanding the means by which multinational firms capture the returns to their innovation.


Week 11, March 29th
10. The measurement of technological change: the use of corporate patent statistics.

**Paper Title:** Discuss the use of corporate patent statistics in the light of any potential difficulties you can identify with patent statistics as a measure of innovative activity.


Week 12, April 5th

11. National systems of innovation, institutions and technology policy.

**Paper Title:** Comment on the justification for government subsidies for basic research, and on the role of technology policy in Europe, Japan and the USA.

Patel, P. and Pavitt, K.L.R. (1994), "National innovation systems: why they are important, and how they may be measured and compared", *Economics of Innovation and New Technology*, vol. 3, no. 1, pp. 77-95.


Week 13, April 12\(^{th}\)
Discussion of first set of student presentations.

Week 14, April 19\(^{th}\)
Discussion of second set of student presentations.

Week 15, April 26\(^{th}\)
No class; completion of term papers; submission of term papers due by Monday, May 2\(^{nd}\), via the Blackboard course site (under the tab "Assignment", you'll find an assignment named "Term paper", click "View/Complete", upload your paper there, and submit).