# History of innovation

## Prof. Fabio Lavista

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The course aims at analysing the relationships between innovation and economic growth from the first industrial revolution to the recent technological development grounded on the diffusion of the Internet. In this context the term innovation is considered in its wider meaning: it involves invention, but also organizational change, the transformation of production and distribution processes, financial innovation, the emergence of new institutions and regulations. In considering the advances in science and technology the course will pay particular attention to the evolution of markets, to the role played by enterprises and to the development of public policies related to innovation.

Upon successful completion of the requirements for this course, students will be able to:

1. understand innovation as a complex process that emerges from networks of people and institutions that include inventors, entrepreneurs, researchers, workers, consumers, investors, firms and governments;

2. improve their understanding of complex socio-technical processes, reflecting on feedback provided during cases and class discussions;

3. develop research skills, primary source analysis and evidence-based writing.

***COURSE CONTENT***

The first part of the course will be dedicated to the concept of innovation, to the relationships between innovation and economic growth and to the structuring of innovation processes. The second part will analyses the same topics in historical perspective, highlighting the relationships between technological paradigms and the structure of the processes of innovation. The third part will be focused on the characteristics of the institutions involved in the innovation processes, paying particular attention to their relationships.

***READING LIST***

 Attending students

First part: Innovation and Economic Growth

Verspagen, Bart. “Innovation and Economic Growth.” In The Oxford Handbook of Innovation, edited by Jan Fagerber, David C Mowery, and Richard R. Nelson, 487–513. Oxford: Oxford University Press, 2004.

Pavitt, Keith. “Innovation Processes.” In The Oxford Handbook of Innovation, edited by Jan Fegerberg, David C Mowery, and Richard R Nelson, 86–114. Oxford: Oxford University Press, 2004.

Second part: The History of Innovation

Bruland, Kristine, and David C Mowery. “Innovation Throught Time.” In The Oxford Handbook of Innovation, edited by Jan Fagerber, David C Mowery, and Richard R. Nelson, 349-379. Oxford: Oxford University Press, 2004.

Mokyr, Joel. “Evolution and the Dynamics of Technological Change.” In The Lever of Riches, 273–300. Oxford: Oxford University Press, 1992.

Third part: Innovation and Institutions

Nelson, Richard R, and Nathan Rosemberg. “Technical Innovation and National System.” In National Innovation Systems, edited by Richard R Nelson, 3–21. Oxford: Oxford University Press, 1993.

Mowery, David C. “Military R&D and Innovation.” In Economics of Innovation, edited by Bronwyn H Hall and Nathan Rosemberg, 1219–56. Amsterdam: North-Holland, 2010.

Lazonick, William. “The Innovative Firm.” In The Oxford Handbook of Innovation, edited by Jan Fegerberg, David C Mowery, and Richard R Nelson, 29–55. Oxford: Oxford University Press, 2004.

O’Sullivan, Mary. “Finance and Innovation.” In The Oxford Handbook of Innovation, edited by Jan Fegerberg, David C Mowery, and Richard R Nelson, 240–65. Oxford: Oxford University Press, 2004.

Granstrand, Ove. “Innovation and Intellectual Property Rights.” In The Oxford Handbook of Innovation, edited by Jan Fegerberg, David C Mowery, and Richard R Nelson, 266–90. Oxford: Oxford University Press, 2004.

Additional reference materials will be posted on Blackboard.

Not attending students

**–** Same as reading list for attending students

– Lamoreaux, Naomi R., Daniel M. G. Raff, and Peter Temin. Learning by Doing in Markets, Firms, and Countries”, Chicago: The University of Chicago Press, 2007.

***TEACHING METHOD***

The course uses a mixture of readings, case studies and primary source analysis.

***ASSESSMENT METHOD AND CRITERIA***

Grading will be based on the evaluation of a group assignment and a ftinal written exam.

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| ***Assessment***  | ***Percentage of total mark*** |
| Group assignment (presentation and report) | 30% |
| Final written examination | 70% |

The output of the work group will be a report on one of the topic of the course and its presentation to the class (the grade of the work group will be valid till the end of the academic year). Students attending to the 70% of the entire course are expected to take a mid-term exam and an end-term exam (encompassing true/false questions, multiple-choice questions and essay questions). Non-attending students will have a general exam on their specific program.

***NOTES AND PREREQUISITES***

The course requires a basic knowledge of technological developments from the first industrial revolution to the 21st century. Students are strongly encouraged to participate to class cases discussions (reading the cases in advance) and to the group works.