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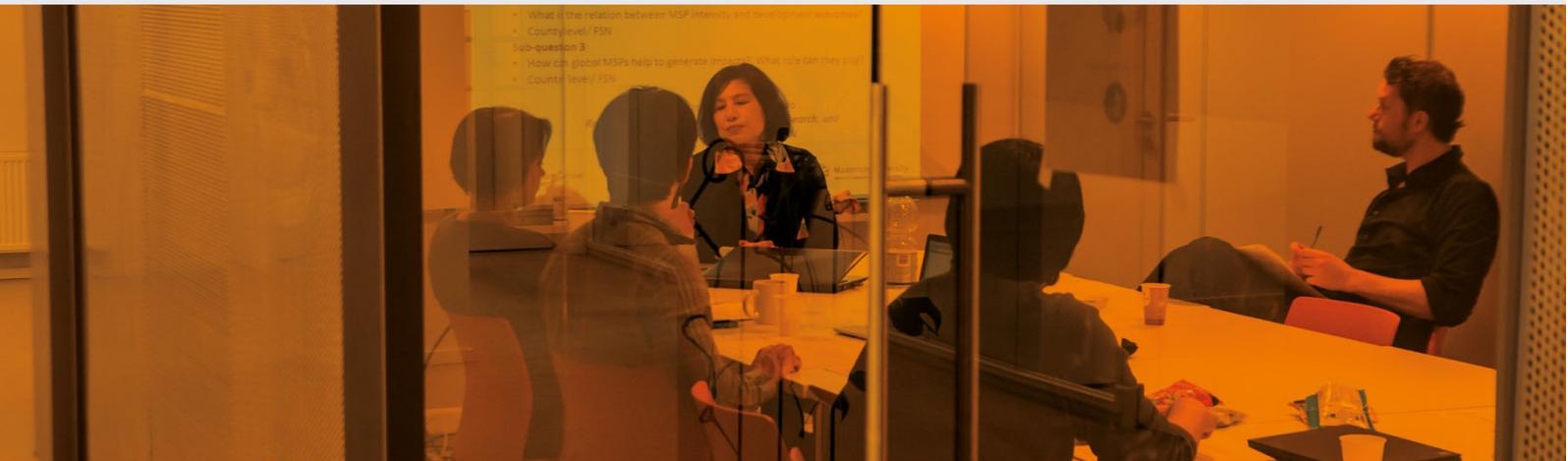
Maastricht University

Maastricht Graduate School of Governance



Economics of Innovation

Online Course Manual



Overview

The course aims at providing an introduction to the main theoretical and empirical issues surrounding the economic analysis of innovation. In particular, the course will discuss how innovation emerges in modern economies and how it interacts with the dynamics and evolution of industries. The course will examine alternative ways of conceptualizing innovation; the sources and procedures of innovation; the relationship between market structure and innovation; the trade-offs and dilemmas in terms of strategy and social welfare which characterize innovative environments.

This course was conceived as an introductory course to students with a limited background in the innovation studies tradition. It uses simple microeconomic and industrial organization models as well as empirical and historical evidence on the evolution of industries and case studies.

Learning Goals

- To acquire the basic jargon necessary to discuss, in a consistent and rigorous way, innovation issues;
- To understand the role that innovation and technical change play in shaping competitiveness and industrial change;
- To recognize sector-level specificities in the sources of innovation, and their consequences for practice and policy;
- To recognize the systemic nature of the innovative process.

Learning materials

Please note: The books “Oxford Handbook of Innovation” (2009) and “Primer on Decision Making: How Decisions Happen” (1994) are not available for free and need to be acquired separately. Links are provided below.

Module 1. The role and properties of innovation.

Video Lectures

0-1 - Innovation and Industrial Dynamics

0-2 - Structure and Methodology

M1-1 - Conceptualizations

M1-2 - Paradigms and Trajectories

Required readings

G. DOSI (1982), Technological paradigms and technological trajectories, Research Policy, 11, pp. 147-162, available at:

<https://maastrichtuniversity.on.worldcat.org/oclc/4652108774>

G. DOSI, R. R. NELSON, Technical Change and Industrial Dynamics as Evolutionary Processes, Lem Working Papers, 2009/07 August 2009, Sections 2-3, pp. 4-40, available at: <http://www.lem.sssup.it/WPLem/2009-07.html>

J. FAGERBERG, D. MOWERY and R. NELSON (eds)., The Oxford Handbook of Innovation, Oxford University Press, 2009: Chapter 1 Innovation: A Guide to the Literature, available from:

https://books.google.nl/books/about/The_Oxford_Handbook_of_Innovation.html?id=uF30DAAAQBAJ&printsec=frontcover&source=kp_read_button&redir_esc=y#v=onepage&q&f=false

Additional literature

J. FAGERBERG, D. MOWERY and R. NELSON (eds)., The Oxford Handbook of Innovation, Oxford University Press, 2009, Chapters 9, 18, 20

Module 2. Innovation as a random phenomenon.

Video Lectures

M2-1 – Failures in Market Information

M2-2 – Arrows Model

M2-3 – Advantages of large and small firms

Required readings

G. DOSI (1988), Sources, procedures and microeconomic effects of innovation, Journal of Economic Literature, 26, pp. 1120-71, available at:

<http://login.ezproxy.ub.unimaas.nl/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=5291542&site=ehost-live&scope=site>

J. FAGERBERG, D. MOWERY and R. NELSON (eds)., The Oxford Handbook of Innovation, Oxford University Press, 2009, Chapter 22

Additional literature

V. BUSH (1945), Science: the endless frontier. Washington, US Government Printing Office, available at:

<https://www.nsf.gov/od/lpa/nsf50/vbush1945.htm>

Module 3. Innovation as the production of new information.

Video Lectures

M3-1 – Empirical Evidence on the Schumpeterian Hypothesis

M3-2 – Technological Regimes

M3-3 – Life Cycles

Required readings

S. BRESCHI, F. MALERBA and L. ORSENIGO (2000), Technological regimes and Schumpeterian patterns of innovation, *The Economic Journal*, available at: <https://maastrichtuniversity.on.worldcat.org/oclc/5549712609>

F. MALERBA (2005), Sectoral systems of innovation: A framework for linking innovation to the knowledge base, structure and dynamics of sector, *Economics of Innovation and New Technology*, 14(1-2), pp. 63-82, available at: <https://www-tandfonline-com.ezproxy.ub.unimaas.nl/doi/full/10.1080/1043859042000228688>

K. PAVITT (1984), Patterns of technical change: towards a taxonomy and a theory, *Research Policy*, 13, pp. 343-374, available at: <https://maastrichtuniversity.on.worldcat.org/oclc/4926482854>

Additional literature

J. FAGERBERG, D. MOWERY and R. NELSON (eds.), *The Oxford Handbook of Innovation*, Oxford University Press, 2009, Chapter 6

Module 4. Innovation as learning.

Video Lectures

M4-1 – Production Function to Competences

M4-2-1 – Innovation is a learning process

M4-2-2 – Property of learning processes

M4-3 – Implications and Trade-offs

Required readings

S. BRUSONI, E. CEFIS and L. ORSENIGO (2006), Innovate or Die? A critical review of the literature on innovation and performance, *Cespri Working Papers*, available at: https://www.researchgate.net/publication/4762764_Innovate_or_Die_A_critical_review_of_the_literature_on_innovation_and_performance

W. COHEN and D. LEVINTHAL (1990), Absorptive capacity: a new perspective on learning and innovation, *Administrative Science Quarterly*, 35, pp. 128-152, available at: <https://www.jstor.org/stable/2393553>

S.J. KLINE and N. ROSENBERG (1986), An Overview of innovation, in R. Landau and N. Rosenberg (eds.) *The positive sum strategy*, National Academy Press, Washington D.C., pp. 275-304, available at: <https://www.nap.edu/read/612/chapter/18>

Additional literature

M. BALCONI, S. BRUSONI AND L. ORSENIGO (2010), In Defence of the Linear Model: An Essay, *Research Policy*, 39(1), 1-13, available at: <https://maastrichtuniversity.on.worldcat.org/oclc/4926519875>

J. FAGERBERG, D. MOWERY and R. NELSON (eds.), *The Oxford Handbook of Innovation*, Oxford University Press, 2009, Chapters 2, 4

J. MARCH (1994), *A primer on decision making*, Free Press, New York, available from: https://books.google.nl/books/about/A_Primer_on_Decision_Making.html?id=RyC7AAAAIAAJ&redir_esc=y

D. MOWERY and R. NELSON. (1999), *The sources of industrial leadership*, Cambridge University Press, Ch. 8, available at: <https://www.cambridge.org/core/books/sources-of-industrial-leadership/diagnostic-devices-an-analysis-of-comparative-advantages/B3612425037CD412A2687755EA22F0E6>

Required Activities

- Introduction video
- Lecture videos
- Required readings
- Assignments
- Online tutorial meetings

Participants are required to watch the lecture videos and to prepare the required readings for each module before the related tutorial meeting. In the first part of the meeting the tutor will provide feedback on the assignment. The second part of the meeting will be devoted to the discussion of the key concepts from the readings. Finally, the main literature and activities for the next module will be introduced.

Grading Procedure

Participants are required to submit one assignment at the end of each module. Each assignment is graded individually on a 1-10 scale. The final grade for this module is the simple weighed average of all assignment grades: weekly assignments (75%) + oral exam (25%). **You will pass the course if the average is 5.5 or higher and if the grade for at least three assignments is 5.5 or higher.**

For the final grade we have a resit opportunity after Module 4. You are allowed to take the resit if your average is below 5.5 or if your grade for one of the assignments in the first sit is less than 5.5.

Timeline

- 1) Modules will run one per week, for a period of 4 weeks. When you have completed a module, you can move on to the next.
- 2) Each assignment must be submitted before the end of the related module.
- 3) The course will close after 4 weeks. Materials will remain available for a period of 2 weeks after the course end date.

Support structure

Course Tutor



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If you have any problems accessing the course or materials please contact the programme coordinator at eprm@merit.unu.edu.

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