



“Measuring and modeling dynamics in innovation systems”

- Location:** Utrecht University, Utrecht, The Netherlands
- Date:** August 17th to August 21th 2015
- Organizer:** European Forum for Studies of Policies for Research and Innovation
Innovation Studies, Copernicus Institute of Sustainable Development, Utrecht University
- Teaching committee:** Prof. Dr. Marko Hekkert
Prof. Dr. Koen Frenken
Prof. Dr. Ellen Moors
Prof. Dr. Floortje Alkemade
Dr. Frank van Rijnsoever (course director)
Dr. Gaston Heimeriks
Dr. Maryse Chappin
Guest speakers
- Maximum participants:** 30

Introduction

After the success in 2013, a new edition of the course “Measuring and modeling dynamics in innovation system” will be organized in 2015.

This course is organized by the Innovation Studies Group of Utrecht University on behalf of the “European Forum for Studies of Policies for Research and Innovation” (Eu-SPRI Forum).

The most important insight that has dominated the field of innovation studies in recent decades is the fact that innovation is a collective activity. It takes place within the context of a wider system of actors. This wider system is coined ‘the innovation system’ or ‘the innovation ecosystem’. The success of innovation trajectories is to a large extent determined by how the innovation system is built up and how it functions.

Many studies on the topic have limited themselves to a descriptive understanding of the innovation system. The idea is that an innovation system consists of multiple interacting components, such as firms who supply innovations, the demand for innovation, knowledge infrastructure, and institutions that support or hamper innovation. The interaction between the components is central in innovation studies.



Each of these components has been studied by different scientific disciplines and traditions. The supply side, for example, is studied extensively by scholars in management, organization studies, and industrial economics. The demand side is largely dominated by scholars in marketing and consumer psychology. Therefore, understanding the innovation system as a dynamic whole is a multi-disciplinary effort in which engineering knowledge about technologies is combined with a range of disciplinary social science approaches. For this reason studying innovation system dynamics is challenging.

This course offers an introduction to analyzing innovation systems dynamics, and to analyzing the different components that make-up the innovation system. It provides a set of tools to scientifically measure and model dynamics in each component of the innovation system and the system as a whole. The goal is to provide a comprehensive overview of the most important theories and methods to study the innovation system. The course contributes to formulating theoretical explanations for findings on a system level, and it prevents 'rediscovering' phenomena that are already known within the disciplinary traditions. Finally, it enriches insights about the effects of systemic policy instruments on different components of the innovation systems. Overall, it lays a solid theoretical and methodological foundation for students that wish to participate in advanced courses about specific topics.

Course objectives

After the course participants have accomplished the following objectives. They:

- Become acquainted with the use of models in the social sciences.
- Become acquainted with theories about dynamics in the innovation system as whole and dominant theories on its separate components.
- Are able to apply these theories to explain specific innovation problems they encounter in their own research projects.
- Have an overview of possibilities to test theories by measuring and modeling empirical data.
- Are able to interpret the outcomes of these models in terms of theory and policy.

More concretely this means that after the course have learned a number of skills:

- Students have a broad understanding of theories in different components of the innovation systems. This enables them to combine insights from different traditions into new research ideas. Further, being aware of different theories is helpful for future collaboration with other scientists.
- Students are able to read, understand and critically assess scientific studies that are conducted in the field of innovation systems.
- Students have a basic level of knowledge that allows them expand their knowledge on the topic by themselves or through other courses.

Content

These objectives are accomplished by treating a different topic every day during a one week course. Each day starts with lectures about theories in the morning. Next, methods about how to measure and model innovation processes based on these theories are discussed. In the afternoon, students will practice modeling themselves and present their research. The course introduces the idea of innovation systems,



and their dynamics over time. Also a broad overview of methods will be presented. Moreover, the program will zoom in on different parts of the innovation system: knowledge & research, demand side, supply side and technological change. On the last day the course will also dedicate a session to relating all insights back to the system level.

Work forms and planning

The duration of the course is five days. Participants receive a certificate after they actively participated in the course. There is a possibility to reward the course with credits (about 3 ECTS).

The two main work forms are interactive lectures and computer labs. Participants are requested to bring their own laptop, with pre-prescribed software. Additional software will be made available by the host organization. This enables flexibility in shifting between work forms. Wireless LAN will be available in the lecture room. All course materials will be made available online for participants.

The lectures will be of an interactive nature, with discussion of between participants and the lecturer. The computer labs consist of plenary introductions and a number of assignments that participants have to complete based on existing data. Actively working with data ensures that students are better able to grasp the content of the lectures and gives an understanding how empirical data is treated in each discipline. Possible Example types of data are: citation data (for example from Scopus or Web of Science), consumer data, firm data (for example the community innovation survey) and data about innovation project subsidies. During the course students also get the opportunity to present their own project (proposals) and receive feedback from experienced ISG staff members and fellow PhD students.

During the course there is room for participants to ask questions they have about their own projects, or to schedule a personal meeting with an ISG member to further discuss own projects. In the evening participants are expected to work on the assignment in their own time if they didn't finish in time. The next morning the assignments are discussed. Each course day begins a 9.00 and ends at 17.15, and has four blocks of teaching. In between the blocks there are coffee and lunch breaks.

On Monday welcome drinks are organized, on Thursday there will be a farewell dinner. On the other two evenings meals will be provided. During three evenings a short lecture will be given. Further, the organizers will inform the participants about possible social activities.



Preliminary program (subject to change)

	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
Theme	Technological change	Knowledge production	Demand side	Supply side	Innovation systems
9.00-10.45	Theory and methods in innovation systems	Dynamics of knowledge production	Users, consumers and citizens in the innovation system	Theories of innovation and the firm	Models of innovation systems and transitions
10.45-11.00	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
11.00-12.45	Technological change in innovation systems	Social network analysis applied to scientometrics and patents	Methods for measuring user preferences	Innovation strategies and the firm	Analyzing dynamics in innovation systems
12-45-13.45	Lunch	Lunch	Lunch	Lunch	Lunch
14.00-15.15	Models of technological change	Social network analysis applied to scientometrics and patents	Analyzing preferences using questionnaire data	Serious games entrepreneurship research	Wrap-up: Back to the system level
15.15-15.30	Break with light snack	Break with light snack	Break with light snack	Break with light snack	Break with light snack
15.30-17.15	Models of technological change	Student presentations	Student presentations	Student presentations	Reserve
Evening	BBQ	Free evening	Free evening	Farewell dinner	17.00: Beer!

Target audience and selection

The primary target audience consists of academic researchers in the early stages of their career, such as PhD students (primarily 1st and 2nd year), junior researchers or researchers that recently received their PhD, but that are new to the field. Academics working at an EU-SPRI related institute are an important audience, but other applicants are also welcome to join. Further, we are open to receiving a limited number of non-academic researchers that are interested in the topic. In total we hope to welcome up to 30 participants.

Applicants are requested to send in their CV and a short letter of motivation. We will not select applicants only on their scientific track record, but also on their potential to learn from the course. Applicants coming from an institution that is an EU-SPRI member have priority over applicants from non-EU-SPRI members.

The call for application opens in March 2015 and will close at the beginning of July 2015. Notification of acceptance will be given soon after this deadline. The deadline may be extended when there are places left. However, last time the course was full. *We therefore encourage participants to apply on time.*



Important dates

March 1st 2015: application website opens
July 1st 2015: application closes
July 15th 2015: notification of acceptance, it is possible that applicants who registered early will also be notified at an earlier stage.
August 17th 2015: start of the course
August 21th 2015: end the course

Location

The city of Utrecht is situated in the centre of the Netherlands, about 30 minutes from the capital city of Amsterdam. There are excellent transport links to all major European cities by air, car and train. Schiphol Airport is approximately 30 minutes away from Utrecht by a train that runs four times an hour.

The city itself is the Netherlands' fourth largest and most central city. Established in 47 BC Utrecht has a historical city center and many interesting place participants can visit. Further, being a student town, Utrecht has a vibrant night life.

Classes will be held at Utrecht Science Park east of the city. The campus is directly connected to the city center and central station by bus lines (approx. 15 minutes) that run six times per hour (even more during rush-hour). The evening events will take place in the city center.

Fee

- € 650 - Course + course materials + housing
- € 450 - Course + course materials

The fee of € 650,- is applicable to non-students. Students currently enrolled at a university will get a discount of € 200,- (this includes the **course, materials and housing**). PhD-applicants coming from an institution that is an EU-SPRI member get a **full discount** for the entire package. This discount will be automatically processed in your account.

Applications should include:

- Curriculum vitae (submit through your account)
- Recent set of transcripts (marks/grades) in English, German, French or in Dutch for Dutch students (submit through your account)
- Proof of enrollment at a higher education institution - if applicable (submit through your account)
- Proof of enrollment at an EU-SPRI member as a PhD student - if applicable (submit through your account)

Note that if you have not fully paid the summer school you are not certain of participation.

How to apply

The enrollment website is open:

<http://www.utrechtsummerschool.nl/courses/science/measuring-and-modeling-dynamics-in-innovation-systems>