Lecture and Seminar (M.Sc.)

Economics of Science and Technology

Fachbereich Wirtschaftswissenschaften

Economic Policy, Innovation and Entrepreneurship Group (Professor Dr. Guido Bünstorf and M.Sc. Rasmus Bode)

Winter Term 2018-19

Time and Location
Monday, 14:15-17:30 (first class on October 22, 2018)
Room 0207 (Nora-Platiel-Strasse 6)

Overview
Innovation drives growth and job creation in modern economies. New knowledge on which innovation is based often derives from scientific research. Understanding the economics of science and the processes in which new scientific knowledge is transferred to the economy is therefore of major importance to explain and possibly improve innovation performance. At the same time, knowledge is a good with rather unusual economic properties, which raises various types of externality and incentive problems. With the system of Open Science, a specific set of institutions has developed over time to address these issues. Studying Open Science therefore helps economists to better understand the working of competitively self-governing societal subsystems outside the sphere of traditional markets. It is therefore little surprising that a burgeoning literature deals with the economics of science. The course will provide an introduction into this literature.

The course combines a lecture part (about the first 60% of the term) with seminar sessions in which students present and discuss selected recent articles in the economics of science and technology.


Requirements (6 ECTS Credits):
- Seminar paper (about 15 pages; due date March 15, 2019) plus oral presentation (about 20 minutes).
- Attendance and active participation in the seminar sessions (dates will be announced).
- All individual requirements have to be passed to earn credits.
- In the M.Sc. program Economic Behaviour and Governance, 6 ECTS can be earned for Modules 3B and 6.

Registration and choice of topics by E-Mail to rbode@uni-kassel.de (open immediately; please name your three preferred topics)

Maximum number of participants: 30. Each topic will be allocated to no more than two students.
Part 1: Lecture

A. Introduction

1. Research and Development in Germany
   1.1 The OECD Classification Research and Development
   1.2 Research and Development in Germany: Structure and Current Trends

B. Economics of Science

2. Knowledge as an Economic Good
   2.1 Production and Reproduction of Knowledge
   2.2 The “Knowledge Dilemma” and Its Solutions

3. The Reward System of Open Science and the Production of New Scientific Knowledge
   3.1 Open Science: Disclosure, Priority and Reputation
   3.2 The Evolution of Open Science: A Brief Historical Overview

4. The Motives of Individual Researchers
   4.1 Motives and Incentives
   4.2 The Behavior of Scientists: A Lifecycle Perspective

5. Current Trends and Challenges
   5.1 Globalization
   5.2 Digitalization
   5.3 Misconduct and Non-Reliable Results

C. Knowledge and Technology Transfer

6. Science and Economic Development
   6.1 Conceptual Models of Science and Innovation
   6.2 Economic Effects of Science: Empirical Evidence
   6.3 Basic Research in Private-Sector Firms: Anomaly or Necessity?

7. The Institutional Framework of Knowledge and Technology Transfer
   7.1. Channels of Knowledge and Technology Transfer
   7.2 Science Policy and Technology Transfer

8. Technology Transfer and the Advance of Science
   8.1 Technology Transfer and Individual Scientific Productivity
   8.2 Technology Transfer and the Diffusion of Knowledge
Part 2: Seminar

Topics for Seminar Papers

(Note: The listed article should help you familiarize with the topic. It should be discussed in detail in the seminar paper, including a discussion of both methods and results. However, the seminar paper needs to go beyond providing a mere summary of the article.)

1. Human Capital and Physical Capital in Science: Evidence from the Legacy of Nazi Germany

2. Socialization Effects in Science I: Professor Quality and the Outcomes of Doctoral Education


4. How Important are Collaborators for the Success of Scientists?

5. Mobility and Productivity: Soviet Immigrants and Academic Mathematics in the U.S.


7. The Matthew Effect in Science: An Empirical Test

8. Is There a Bias Against Novelty in Science?
9. Influences on Science I: Funding


10. Influences on Science II: Costs of Equipment


11. Influences on Science I: Prior Knowledge


12. The Spatial Diffusion of Scientific Knowledge


13. The Impact of “False Science”: Evidence from Retracted Articles


14. How Widespread Is the Use of Questionable Research Practices?


15. Secrecy and Delay in Disclosure of Industry-Sponsored Research


17. Institutional Responses to Patented Research Tools: the Case of the Oncomouse