

Network Science & Economics (MA)

Spring Semester 2022

Content

Course Goal Students will:

- a) **learn** how to describe and analyze social networks,
- b) **understand** some of the most important ideas developed in network science,
- c) **analyze** microeconomic models of network formation.

Course description WhatsApp and TikTok are two well-known examples of social networks. However, the importance of relationships is not restricted to the online world and, similarly, the term social networks includes various applications both online and offline. Offline examples range from ancient marriage networks to R&D collaborations between firms. The analysis of social networks has become one of the liveliest fields of research in economics, as well as in other (social) sciences. This course gives an introduction into this field and thereby puts emphasis on economic models of network formation.

Outline

1. Introduction to social networks
2. Analyzing social networks
3. Strategic network formation
4. Outlook: behavior on networks

Organisation

This course will exceptionally, for Spring Semester 2022 only, be taught as an online course. It consists of live sessions and online material, including video lectures.

Live sessions will take place only Thursdays 9:00 - 11:00 on MS Teams. Here's the Link.

Examination

Final Exam This class is graded through an end of semester written exam. The exam is 60 minutes long.

Supporting Materials

Lecture & Exercises All materials required for the class are available on Moodle.

The best preparation material for the final exam is the handout with the slides and the set of exercises. Students are particularly advised to independently try to solve each exercise *before* discussing them in class or watching a video about it.

Reference books The main text book is Jackson (2010).

JACKSON, M.O. (2010). *Social and Economic Networks*. PRINCETON UNIVERSITY PRESS.

BRAMOULLE, Y., GALEOTTI, A. AND ROGERS, B. (2016). *The Oxford Handbook of the Economics of Networks*. OXFORD UNIVERSITY PRESS.

EASLEY, D. AND KLEINBERG, J. (2010). *Networks, Crowds, and Markets: Reasoning About a Highly Connected World*. CAMBRIDGE UNIVERSITY PRESS.