



Economic and Social Network Analysis- (Vorlesung)

SCHEDULE: (3 HOURS)

(time and classroom will be announced later)

CONTENT:

The aim of this course is to provide theoretical as well as empirical equipment that is necessary for understanding and analyzing the network structure of social interactions.

This course consists of two parts: “toolkit” of network theory will be introduced in the first part. Toolkit contains definitions and metrics to create networks’ descriptive statistics, and models to analyze networks’ fundamental structures. In the second part influential papers of the field will be introduced and discussed. See the course plan for details

PREREQUISITES:

This course is intended primarily for master students (officially offered for Economics Masters, IWG, and PE Masters- see the “Vorlesungsverzeichnis” for details). It is required to have a strong background in microeconomic theory and statistics. Some background in game theory and econometrics is definitely an advantage. Prior knowledge in international economics and labor economics are not required per se but recommended for better understanding of some of the topics presented in this course.

TEXT:

Mark E. J. Newman *Networks* Oxford University Press, 2010.

Matthew O. Jackson *Social and Economic Networks* Princeton University Press, 2008.

(See the course plan for individual papers that will be covered during lectures)

Additional useful material on networks:

Bonacich & Lu *Introduction to Mathematical Sociology* Princeton University Press, 2012.

Sanjeev Goyal *Connections* Princeton University Press, 2007.

de Nooy, Mrvar, Batagelj *Exploratory Social Network Analysis with Pajek* Cambridge University Press, 2011.

GRADING:

Your grade will be based on three homework assignments, presentation, and a research review/proposal (max. 5 pages).

Your three homework assignments will count towards 40% of your grade in total.

Presentation and proposal will make up 30% of your grade each.

COURSE PLAN (TENTATIVE)

Introduction and Empirical Background: Jackson Ch. 1, 2, 3

Measures and Metrics of Networks: Newman Ch. 6, 7, 8

Random Graph Models of Networks: Jackson Ch. 4, 5, Newman Ch. 12, 13, 15

Strategic Network Formation: Jackson Ch. 6, Newman Ch. 14

Modularity and Community Detection: Newman Ch. 11

Games on Networks: Jackson Ch. 11, 12

Diffusion and Learning in Networks

Jackson Ch. 7, 8

Golub, B. and M.O. Jackson (2012) "How Homophily Affects the Speed of Learning and Best-Response Dynamics," *Quarterly Journal of Economics*, 127(3): 1287-1338.

Social Networks in Labor Markets

Calvo-Armengol, A., and M.O. Jackson (2004) "The Effects of Social Networks on Employment and Inequality," *American Economic Review*, 94(3): 426-454.

Bayer, P., Ross, S.L., and G. Topa (2008) "Place of Work and Place of Residence: Informal Hiring Networks and Labor Market Outcomes," *Journal of Political Economy*, 116(6): 1150-1196.

Trade and Bargaining in Networks

Kranton, R. and D. Minehart (2001) "A Theory of Buyer-Seller Networks," *American Economic Review*, 91(3), 485-508.

Judd, S.J., and M. Kearns (2008) "Behavioral Experiments in Networked Trade," *Proceedings of the 9th ACM Conference on Electronic Commerce*, 150-159.

Collaboration and Interaction of Firms in Networks

Goyal, S. and S. Joshi (2003) "Networks of Collaboration in Oligopoly," *Games and Economic Behavior*, 43(1): 57-85.

Uzzi, B. (1996) "Sources and Consequences of Embeddedness for the Economic Performance of Organizations: the Network Effect," *American Sociological Review*, 61(4): 674-698.

Crime Networks

Ballester, C., Calvo-Armengol, A., and Y. Zenou (2006) "Who's Who in Networks? Wanted: the Key Player," *Econometrica*, 74: 1403-1417.

Lee, L., Liu, X., Patacchini, E., and Y. Zenou (2012) "Criminal Networks: Who is the Key Player?" *CEPR Discussion Papers*, 8772.