

Elective Course:

Social Networks in Social Science Research: Theory and Practice

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Course Description

This course provides a comprehensive introduction to the theoretical framework and methods used in social network analysis (SNA). It will focus on different aspects of social reality that can be studied using SNA, including social capital, innovation diffusion, online social networks, the effects of social networks on health, etc. Other topics covered are the recent methodological developments in SNA, existing network datasets, and network data collection. The hands-on part of the course covers basics of SNA in R, including data management, descriptive analysis, and visualization. This course also aims to enhance students' scientific writing, discussion, and presentation skills, and develop their research agenda.

Learning Objectives

- Define core network characteristics and concepts.
- List and compare theories of social networks.
- Handle network data and calculate network characteristics.
- Explain the role of social networks in the various aspects of social reality.
- Analyze scientific articles on social network research.
- Evaluate social network data sources.
- Apply theoretical and methodological framework of SNA to social science research.
- Formulate research questions connected to social networks.
- Reflect on opportunities and limitations in social network research.

Course Outline

1) 14.02.2024 *Introduction to Social Networks I*

- Overview of social network analysis and its theoretical foundations
- Key concepts and measures in social network analysis

Readings: none.

2) 21.02.2024 *Introduction to Social Networks II*

- Social networks formation
- Effects of social networks and effects on social networks
- Causal inference in social networks research

Readings (* marks the article for student presentation this week):

Fuhse, J. A. (2020). Theories of social networks. *The Oxford Handbook of Social Networks*, 34-49.

*Vander Weele, T. J., & An, W. (2013). Social networks and causal inference. *Handbook of causal analysis for social research*, 353-374.

3) 28.02.2024 *Social Capital and Networks*

- Definition and importance of social capital
- Bridging vs Closure social capital theories
- Social capital and inequality in networks

Readings:

Burt, R. S. (2017). Structural holes versus network closure as social capital. *Social capital*, 31-56.

*Pichler, F., & Wallace, C. (2009). Social capital and social class in Europe: The role of social networks in social stratification. *European Sociological Review*, 25(3), 319-332.

4) 06.03.2024 *Firm and Organization Networks*

- Definition and importance of firm and organization networks
- How networks can facilitate success or failure of organizations and firms
- Empirical examples of firm and organization networks

Readings:

Uzzi, B. (1999). Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing. *American sociological review*, 481-505.

*Muscillo, A., Pin, P., Razzolini, T., & Serti, F. (2023). Does “network closure” beef up firms’ performance? *Social Networks*, 73, 89-103.

5) 13.03.2024 *Online Networks*

- Overview of social media platforms and their network structures
- Analysis of social media data using social network analysis
- Discussion of the advantages and limitations of studying networks on social media

Readings:

Cinelli, M., De Francisci Morales, G., Galeazzi, A., Quattrociocchi, W., & Starnini, M. (2021). The echo chamber effect on social media. *Proceedings of the National Academy of Sciences*, 118(9), e2023301118.

*Hofstra, B., Corten, R., Van Tubergen, F., & Ellison, N. B. (2017). Sources of segregation in social networks: A novel approach using Facebook. *American Sociological Review*, 82(3), 625-656.

6) 20.03.2024 *Criminal Networks*

- Structures of criminal networks around the world
- Discussion of the challenges of studying criminal networks

Readings:

Campana, P., & Varese, F. (2022). Studying organized crime networks: Data sources, boundaries and the limits of structural measures. *Social networks*, 69, 149-159.

*Calderoni, F. (2012). The structure of drug trafficking mafias: the 'Ndrangheta and cocaine. *Crime, law and social change*, 58, 321-349.

7) 10.04.2024 *Family networks*

- Structures of family networks
- Effects of family networks on various life outcomes

Readings:

Cross, C. J. (2020). Racial/ethnic differences in the association between family structure and children's education. *Journal of Marriage and Family*, 82(2), 691-712.

*Heering, L., Van Der Erf, R., & Van Wissen, L. (2004). The role of family networks and migration culture in the continuation of Moroccan emigration: A gender perspective. *Journal of ethnic and migration studies*, 30(2), 323-337.

8) 17.04.2024 *Social Networks and Health*

- The effects of social networks on health and well-being
- Social support and health outcomes
- Discussion of the challenges of studying social networks and health

Readings:

Smith, K. P., & Christakis, N. A. (2008). Social networks and health. *Annual Review of Sociology*, 34, 405-429.

*Shor, E., Roelfs, D. J., & Yogev, T. (2013). The strength of family ties: A meta-analysis and meta-regression of self-reported social support and mortality. *Social Networks*, 35(4), 626-638.

9) 24.04.2024 *New Methodological Developments in SNA*

- Exponential Random Graph Modelling (ERGM)
- Stochastic Actor-Oriented Modelling (SAOM)
- New data sources for SNA

Readings:

- Schaefer, D. R., & Marcum, C. S. (2017). Modeling network dynamics. In *The Oxford handbook of social networks* (pp. 254-287). New York: Oxford University Press.
- *Kretschmer, D., Leszczensky, L., & Pink, S. (2018). Selection and influence processes in academic achievement—More pronounced for girls? *Social Networks*, 52, 251-260.

10) 08.05.2024 *Network Data: Collection, Use, and Limitations*

- Different sources of network data and their characteristics
- The benefits and challenges of using network data
- Overview of some of the existing network datasets and their applications
- Final paper Q&A

Readings:

- Marsden, P. V. (2005). Recent developments in network measurement. *Models and methods in social network analysis*, 8, 30.

11) 22.05.2024 *Social Network Analysis: Hands-on Tutorial in R – I*

- Handling network data
- Calculating network statistics

12) 29.05.2024 *Social Network Analysis: Hands-on Tutorial in R – II*

- Visualizing networks
- Regression with network data

Assessment:

- Presentation of an article (***Studienleistung***): Presenting one of the articles (marked by *) from the readings list for the respective session.

During this course, students will be assigned research articles to present at the sessions. Article presentation should last no longer than 15 minutes, be designed in PowerPoint (or an alternative presentation software) and present the following components for the class: article's research question, scientific contribution, theoretical framework, data and methods, analytical strategy, main results, conclusions, limitations, potential directions for further research. Each assigned article can be presented by up to 2 students; article distribution will be done by the students via Google Sheets on a 'first come – first served' basis.

- Final paper: extended project proposal (***Prüfungsleistung***).

The final paper will consist of an extended research proposal on a topic that includes social networks. Students will be required to formulate a research question, provide a theoretical framework, propose a methodological design, and discuss possible limitations of their research. For the detailed guide that includes the proposal structure, recommended timeline, deadline, and other information, see "*Final_paper_guide*" on ILIAS.