



London Interdisciplinary Social Science Doctoral Training Partnership

Advanced Research Methods in Social Sciences

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| Course Code & Title | LISS238 Social Network Analysis | | |
| Convenor(s) | Dr Carolina Mattsson, Leiden Institute of Advanced Computer Sciences, Leiden University | | |
| Institution | King's College London | Department | LISS DTP |
| Academic Year | 2023-24 | Term | Autumn |
| Number of Sessions | 4 sessions over 2 days | Length of Session(s) | Full day (over 2 days) |
| Day, Date | | Start : End | Room Location |
| Wednesday 8th November 2023 Thursday 9th November 2023 | | 10:00 – 17:00 | Online via Zoom |
| Enrolment Link: | Available to book on SkillsForge from Thursday 21st September 2023 . Click to log in and register: https://training.kcl.ac.uk/kcl/#he/dev/eventDetails;;em,providerCode=LISS,providerOrgAlias=kcl,number=238; Questions? Visit our Training FAQ here: Frequently Asked Questions - LISS DTP (liss-dtp.ac.uk) | | |

Course Description: This course familiarises PhD students with the main network theories in social science and develops basic skills in social network analysis (SNA). After completion you are familiar with the theoretical and methodological underpinnings of the social network perspective and are able to conduct a basic network analysis. Throughout the course we will focus on applying SNA to empirical data, where possible related to the students own research.

The course starts with an overview of network theory in social science and basic concepts in SNA. We contextualise SNA within several disciplines of social science, exploring differences between the focus on social relations and approaches that focus on individual attributes. Students will then be presented with examples of important contributions that SNA has made to our understanding of human society. This course then introduces fundamental concepts used to describe network structure and function.

From this we move to an introduction in several network analysis methods and basic measures. The key takeaway here is to prioritize finding a match between these methods and measures on the one hand, and your research question and available data on the other. This module also addresses issues such as ‘what type of empirical data is suited for SNA?’ and ‘how does one collect and prepare data for analysis?’

Students will become familiar with social network theory and analysis as a flexible approach that comes with a practical set of research instruments to empirically investigate a range of questions in social science. They will learn how to approach and manage network data, analyse network structures (for instance centrality; community detection), and visualize these networks using Gephi software package.

Course Outline:

Session 1: Social Network Analysis: theory and concepts

Themes covered:



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- The fundamentals of a social network approach
- What has SNA brought us so far? Fundamental insights and recent innovations, including: friendship paradox; small worlds; social capital & brokerage; social influence; networked counterpublics
- Key concepts, including: nodes & edges; degree & distance; centralities; density; assortativity

Session 2: Network data in Gephi

Themes covered (hands-on):

- How to retrieve network data
- Data storage and data types
- Become familiar with Gephi
- Import, visualize and manually inspect network data through Gephi

Session 3: Network Science: useful tools for your research

Themes covered:

- Introduction to network analysis on “big data”, including: administrative records; digital trace data; social media data; application programming interfaces (APIs)
- Key concepts, including: preferential attachment; community detection; bipartite projection
- Formulate your research question from a network perspective:
 - Data driven vs. theory driven research approaches
 - Network analysis without network data
 - Computational Social Science

Session 4: Network analysis with Gephi

Themes covered (hands-on):

- Data quality
- Network visualisation
- Network analysis
- Optional: network analysis in python

Reading List:

Required:

Scott, J. (2017). Social Network Analysis. A Handbook. London, Thousand Oaks, New Delhi, Sage Publications. Fourth edition. (Chapters 1 – 5)

Will be used during the course

http://gephi.github.io/tutorials/gephi-tutorial-quick_start.pdf

<http://gephi.github.io/tutorials/gephi-tutorial-visualization.pdf>



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<http://gephi.github.io/users/tutorial-layouts/>

Eligibility:

You must be a PhD student at King's, Queen Mary or Imperial, and you must have already registered as a LISS DTP student via the following link: [Affiliate students - LISS DTP \(liss-dtp.ac.uk\)](http://liss-dtp.ac.uk)

Pre course preparation:

Students should have read the required chapters of Scott (see above)

For the hands on network analysis part of the course we use Gephi. Please make every effort to install this on your own computers **before** the short course; reach out ahead of time if you need assistance.

<http://gephi.github.io/users/download/> (open source)

Number of students:

20