

Foundations of Network Analysis

Course Syllabus

Digital Humanities Summer Institute
Online – June 6th to 10th, 2022

The class outline may change before Day 1. The most up-to-date version of the course outline can be found on the course website at <https://github.com/jmotis/DHSL-networks-2022>

Instructor:

Jessica Otis
jmotis13@gmail.com
@jotis13

Course Description:

This course offers a basic introduction to the construction and analysis of networks. Participants will become familiar with the mathematical concepts that are foundational to networks as they learn to format network data, analyze and interpret networks structures, visualize network graphs, and integrate network analysis into their existing research workflows. They will also be introduced to popular cross-platform digital humanities tools for the visualization and analysis of networks. This course will be relevant to all humanities researchers who are interested in learning more about the potential of network analysis to support humanist research goals. Having completed this course, participants will have a better understanding of how to employ network analysis in their future research and pedagogy. No previous mathematical or programming experience is required.

Learning Outcomes:

You should walk away from this course with the following knowledge:

- What the underlying mathematical concepts in a network are
- How to format humanities data for network analysis
- How to visualize networks in order to convey a narrative argument
- How to quantitatively analyze and interpret network structures
- What the currently popular network software and libraries are

Preparation for the Course:

You must have your own computer (“own” as in you have administrator rights to install software on it in addition to however else “own” is usually understood) so that you can leave the course with the appropriate software installed and an environment that you are ready to begin working in.

If possible, please install Gephi before this course begins. You can find the free download at -> <https://gephi.org>. Gephi can be a bit finicky so if you have trouble with the install then I will help you complete the install before we need to use it in class.

Optional Readings:

Journal:

Journal of Historical Network Research, <https://jhnrl.uni.lu/index.php/jhnrl/issue/archive>

Book:

Joad Raymond and Noah Moaxham, eds, *News Networks in Early Modern Europe* (Brill: 2016), <https://brill.com/abstract/title/26263>

Ruth Ahnert, Sebastian E. Ahnert, Catherine Nicole Coleman, and Scott Weingart, [*The Network Turn: Changing Perspectives in the Humanities*](#) (Cambridge: Cambridge Elements, 2021).

Articles:

Ruth Ahnert and Sebastian E. Ahnert, "Metadata, Surveillance and the Tudor State," *History Workshop Journal* (2019), <https://doi.org/10.1093/hwk/dby033>

Ruth Ahnert and Sebastian E. Ahnert, "Protestant Letter Networks in the Reign of Mary I: A Quantitative Approach," *ELH* 82, no. 1 (2015): 1-33, <https://qmro.qmul.ac.uk/xmlui/handle/123456789/10170>

Florian Krautli and Matteo Valleriani, "CorpusTracer: A CIDOC Database for Tracing Knowledge Networks," *Digital Scholarship in the Humanities* 33, no. 2 (2018): 336-346, <https://doi.org/10.1093/llc/fqx047>

James Lee and Jason Lee, "Shakespeare's Tragic Social Network; or Why All the World's a Stage," *Digital Humanities Quarterly* 11, no. 2 (2017), <http://digitalhumanities.org:8081/dhq/vol/11/2/000289/000289.html>

Matteo Romanello, "Exploring Citation Networks to Study Intertextuality in Classics," *Digital Humanities Quarterly* 10, no. 2 (2016), <http://digitalhumanities.org:8081/dhq/vol/10/2/000255/000255.html>

Claire Ruegg and James Jaehoon Lee, "Epic Social Networks and Eve's Centrality in Milton's *Paradise Lost*," *Digital Scholarship in the Humanities* (2019), <https://doi.org/10.1093/llc/fqz001>

Digital Projects:

Cristina Pattuelli, "Linked Jazz," <https://linkedjazz.org/network/>

Walter Scheidel, Elijah Meeks, et al, "ORBIS: The Stanford Geospatial Network Model for the Roman World," <http://orbis.stanford.edu>

Christopher Warren, Daniel Shore, et al., "Six Degrees of Francis Bacon," <http://sixdegreesoffrancisbacon.com>

Schedule:

Day 1 – June 6th: Welcome and Introduction to Networks

BEFORE SESSION – Introduce yourself on Slack, watch the first two class videos (all video names begin with a number indicating viewing order), complete a short exercise

1. Welcome (async: Slack)
2. Basic Concepts, History, and Networks in Our Lives (async: video, short exercise)

SYNCHRONOUS SESSION -

3. Creating Our First Networks (sync: Zoom) 11am Pacific/UVic time, 2pm Eastern, 7pm UK/GMT+1, etc.

Day 2 – June 7th: Structuring Networks

BEFORE SESSION – Watch the next two class videos

1. Varieties of Networks (async: video)

SYNCHRONOUS SESSION -

2. Breakout Exercise: Airline Networks (sync: Zoom) 11am Pacific/UVic time, 2pm Eastern, 7pm UK/GMT+1, etc.
3. Structuring Data for Networks (sync: Zoom, cont)

Day 3 – June 8th: Visualizing & Quantitatively Analyzing Networks

BEFORE SESSION – Watch the next five class videos (NB – I recommend actually watching the three visualization videos on Day 2 if your time zone allows it)

1. Visualizing Networks (async: video)
2. Networks Over Time and Space (async: video)
3. Network Metrics (async: video)

SYNCHRONOUS SESSION –

4. Breakout Exercise: the Diary of Samuel Pepys (sync: Zoom) 11am Pacific/UVic time, 2pm Eastern, 7pm UK/GMT+1, etc.

Day 4 – June 9th: Individual Projects

1. Additional Network Tools (async video)
2. Students work on individual projects, with instructor support (async: Slack / sync: Zoom as needed)

Day 5 – June 10th: Race to the Finish

1. Students work on individual projects, with instructor support (async: Slack / sync: Zoom as needed)