The Monday is meant to establish common ground among participants, so also in the literature feel free to not read what you already are sufficiently familiar with.

As background readings on social network analysis, in the syllabus you find a general orientation on social network analysis (Borgatti et al.) and as an introduction to network data, notations and statistics, Chapter 2 of Eric Kolaczyk’s excellent book.


The book covers a lot of material that is not too relevant for networks we commonly work with in the social sciences.

As other, general and additional reading material not in the syllabus, you might consider giving the following two a try. Freeman’s book is a historical overview of the social network analysis discipline; the paper by Newman & Park is written for an audience of physicists and mathematicians who are used to viewing networks the way they are portrayed in A.-L. Barabási’s book LINKED:


As background readings on statistical interdependence of social network data, the syllabus contains a general introduction to the problem of interdependence in statistical data analysis by William Cook and two ‘coping strategies’ that were used comparatively early on in social network analysis. The first is the so-called 'conditional uniform' hypothesis testing. Using this approach, Katie Faust addresses the question to what degree triads can already be explained by the dyad census. The second is permutation based hypothesis testing for social network data; an application is given in the paper by Martin Kilduff and David Krackhardt.


Not everything is of direct relevance to the course! From the paper by Cook you can skip the text from p.526, section "Models of Nonindependence in Dyadic Relationships" and resume on p.533 with section "Nonindependence in Social Network Analysis"; the skipped sections belong more to the models addressed next week. In the paper by Kilduff & Krackhardt, the course-relevant part is the analysis section and everything you need for understanding it. And in the paper by Faust, the important part is "getting the message", not understanding all the formulae.
The **Tuesday** is devoted to the study of network dynamics following the stochastic actor-based approach developed by Tom Snijders and colleagues. A general introduction is the article by Snijders et al.; in the (German) chapter by Steglich & Knecht, it is shown how failure to account for network dependencies can result in biased estimates of dyad-level effects like homophily tendencies. Two applied papers are those by van de Bunt et al. gives (directed, intra-organisational network data) and Manger et al. (undirected, inter-national network data). Many other applications can be found at the SIENA website [http://www.stats.ox.ac.uk/~snijders/siena/](http://www.stats.ox.ac.uk/~snijders/siena/). Visualisation principles for dynamic network data are explained in the paper by Brandes et al.


On the **Wednesday**, after addressing goodness of fit for the models introduced the day before (Lospinoso et al.), the main topic is the study of peer effects, i.e., the interdependent co-evolution of networks with individual actor characteristics. There is a lot of literature about this that will not be addressed in the course. It is good to be aware of economists’ arguments about the possibility to detect ‘peer effects’ that were developed by Charles Manski or Steven Durlauf. A recent paper taking such a ‘principled stand’ is the one by Shalizi & Thomas in the syllabus. Another reference point in this literature is the methodologically problematic empirical approach taken by Nicholas Christakis and James Fowler in their publications. The Slate article by David M. Johns gives an impression of the methodology debate that the two authors succeeded in starting. Finally, the paper by Steglich et al. shows how stochastic actor-based models go about the detection of peer influence.

(LOSINOSO ET AL ARTICLE)


On Thursday, the stochastic actor-based approach will be extended and applied to different data types: networks on multiple groups (Lubbers et al.), multiplex networks (Ellwardt et al.), multi-modal networks (Snijder et al.), valued networks, or growing networks. The following list introduces to the more documented options:


The main topic on the Friday is the analysis of non-dynamic network data with the help of stochastic actor-based models (Snijders & Steglich) and exponential random graph models.


Exponential random graph modelling is addressed most explicitly in the Robins et al. paper; the remaining two are applications. Goodreau et al. emphasise the interdependence issue; de la Haye et al. addresses the 'sexy' topic of whether the body mass index may be socially contagious.

Finally, there are the manuals of the software packages that are used in the workshop:

