Network Analysis: An Advanced Course
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Course Description
This workshop covers advanced methodology for network analysis. Topics to be covered in lecture and lab sessions include \( p^* \) (the new exponential family of random graph distributions) and approaches to longitudinal network data (such as actor-oriented co-evolutionary models like SIENA). Generalized blockmodeling (fit with software Pajek) and general estimating equations (as used by econometricians and networkers for the analysis of data measured over time) will be introduced, though not extensively covered in labs. We will also present, as interest dictates, innovative methods for network visualization and methods for collecting and analyzing personal network data. The morning and afternoon sessions are coordinated so that each day presents methodological developments in the morning with afternoon computer lab sessions enabling applications to real data. The workshop will meet each day from roughly 9:00 a.m. – roughly 6:00 p.m. with a break for lunch. This workshop assumes that participants have already taken a first course in network analysis, such as the ICPSR Summer Program workshop “Network Analysis: A First Course”.

Approximate Daily Schedule
9:00ish-Noon Lecture
Noon-1:15 Lunch
1:15-5:00 Lecture and Lab
5:00-6:00 Discussion and Informal one-on-one discussion with instructors

Course texts
There are two necessary texts for this class. Please bring them both.


As this is an advanced course, we recommend that you are familiar with the contents of Wasserman and Faust before we begin.


Additionally, you may find the following texts helpful:


**Topics**

In this course we will cover the following topics:

1. *p*
2. Two-mode networks
3. Network change approaches: General estimating equations, co-evolutionary, actor-oriented/tie-oriented
4. Advanced Visualization
5. Blockmodeling
6. Personal Network Studies
7. Affiliation Networks (time permitting)

**Computer Programs**

We will be using a number of different social network analysis computer programs. All of these are available in the computer labs. All but UCINET are freely available on the web.

- **UCINET**, available in computer labs and for purchase from Analytic Technologies: [http://www.analytictech.com](http://www.analytictech.com)
- **Pajek**: [http://pajek.imfm.si/doku.php?id=download](http://pajek.imfm.si/doku.php?id=download)
- **Netdraw**, comes with the UCINET package or individually at: [http://www.analytictech.com](http://www.analytictech.com)
- **Network Workbench**: [http://nwb.slis.indiana.edu/download.html](http://nwb.slis.indiana.edu/download.html)
- **Statnet Package in R**: [http://csde.washington.edu/statnet/](http://csde.washington.edu/statnet/)
- **Siena Package in R**: [http://www.stats.ox.ac.uk/~snijders/siena/](http://www.stats.ox.ac.uk/~snijders/siena/)
- **Egoweb**: [http://egoweb.github.com/](http://egoweb.github.com/)