



Photo: Vladimir Batagelj: *Dragon*

Course 13 Network Analysis Basic information

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Teachers



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Network Analysis

The course aims to provide an introduction into the main topics and concepts of social network analysis. It focuses on the analysis and visualization of complete networks.

Participants will get understanding of basic network analysis concepts like centrality, cohesion, blockmodeling, ... A special attention will be given to the analysis of large networks.

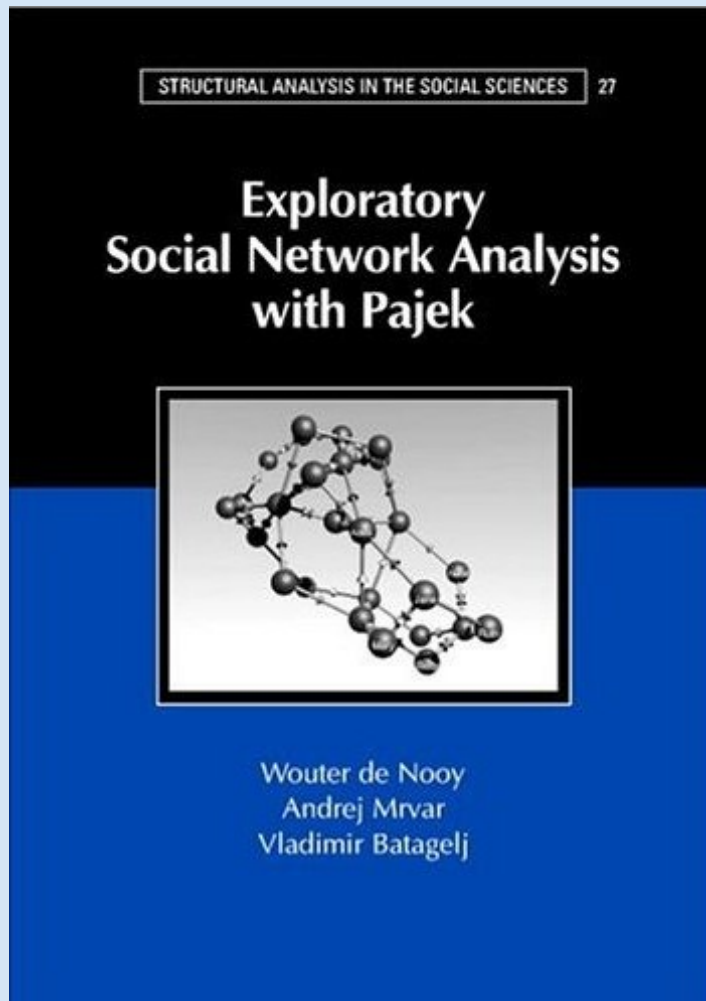
After the course participants should be able to examine data in 'social networks way' – they should be able to identify and formulate their own network analysis problems, solve them using network analysis software and interpret the obtained results.

<http://vlado.fmf.uni-lj.si/pub/networks/doc/ecpr07.htm>

Program

date	hours	topic
Mon 23	14.00 - 15.30	Introduction to the course.
Tue 24	09.00 - 12.00	(1) Basic network concepts. Partitions and vectors. Visualization. Types of networks. Pajek and network analysis software.
Wed 25		(2) Local and global views. Subnetworks. Cuts. Paths in networks.
Thu 26		(3) Connectivity. Acyclic networks. Short cycles.
Fri 27		(4) Centrality and prestige. Hubs and authorities. Triads. Pattern search.
Mon 30		(5) Cohesion, cliques, cores, generalized cores, islands.
Tue 31		(6) 2-mode networks. 4-rings. 2-mode cores.
Wed 01		(7) Clustering and blockmodeling.
Thu 02		(8) Multiplication of networks. Networks from the tables. Temporal, multirelational and sequences of networks.
Fri 03		(9) Large networks. Scale-free networks.
Sat 04	09.00 - 12.00	Exams.

ESNA Pajek



An introduction to social network analysis with **Pajek** is available in the book **ESNA** (de Nooy, Mrvar, Batagelj 2005).

Pajek – program for analysis and visualization of large networks is freely available, for noncommercial use, at its web site.

<http://vlado.fmf.uni-lj.si/pub/networks/pajek/>

Setup

Each meeting consists of a 90 minutes lecture, and a 80 minutes lab session with 10 minutes break in between.

The course moved to the afternoon: lectures in room 20 and labs in room 24.

The concepts explained are applied in **Pajek** during the lab sessions. Students will receive test datasets to practice.

An assignment will be handed out each day after the lectures. The students are expected to return an individual report next day to TA.

The exam will consist of a set of questions to be answered by short answers.

The final grade = $0.6 \times \text{assignments} + 0.4 \times \text{exam}$.