



Interuniversity Graduate School of Psychometrics en Sociometrics
Faculty of Social and Behavioral Sciences, Leiden University
P.O. Box 9555, 2300 RB Leiden, the Netherlands
Phone: + 31 (0)71 527 3829 / 3794, Fax + 31 (0)71 527 3794
E-mail: iops@iops.nl
Web: www.iops.nl

Seminar *Statistical models for social network analysis*

Final registration date: 21 December 2007

Instructor(s): Dr Marijtje Van Duijn & dr Mark Huisman, University of Groningen

Dates: Monday 7 and Tuesday 8 January 2008

Location and how to get there: University of Groningen

Short description of the course

Social network analysis is an interdisciplinary field of research with applications in sociology, anthropology, statistics, mathematics, information sciences, education, psychology, and other disciplines. Well-known examples concern, sometimes longitudinal, studies of friendship ties among students or among coworkers. Researchers are not only interested in describing social networks, possibly with the help of graphical representations, but also in explaining their structure.

The statistical models applied in social network analysis are typically non-standard because the common assumption of independent observations does not hold: The multiple ties to and from the same actor are related. It is actually this dependence structure that is of interest in social network analysis. Moreover, the assumption of continuous normally distributed variables does not hold when tie variables are binary, as is often the case. For both reasons, the estimation of social network models requires extra effort.

After a general introduction to social network analysis, its history, and some standard descriptive measures and models, we focus on two statistical models for social network analysis in the seminar: the p_2 model and the SIENA model. The p_2 model is best described as a random-effects multinomial logistic regression model that models the pair of relations between two actors in the network (from and to an actor) as a function of individual actor and relation pair characteristics. Recent extensions to the model involve the analysis of multiplex and multiple networks. The SIENA model is a stochastic actor-oriented model for longitudinal network data that models the evolution of the network as a continuous-time Markov chain of tie changes of individual actors between two observations of the network. The model is also known as the SIENA model, after the software used to estimate it, and was recently extended to analyze the joint development of social networks and behavior, acknowledging the simultaneous influence of individual behavior on the network structure and of network structure on individual behavior (for instance friendship and smoking).

The availability of software is an essential condition for the feasibility of social network analysis, especially for applied researchers. During the seminar the participants will work with the programs Pajek and StOCNET, free software developed at the University of Ljubljana (Slovenia) and University of Groningen, respectively.

Course format:

Two days with a combination of lectures and labs. A small assignment will complete the course.

Language: English

Prerequisites:

Working knowledge of (logistic) regression

Literature (books, readers) / price

Reader with selected articles and tutorial / approx € 25

Minimum/maximum number of participants: 25

Certificate: yes

Number of European Credit Points: 1 ECTS

Course fees

IOPS PhD students	Free
University PhD students (appointed as AiO)	Course fee € 200 Registration fee € 25 Course materials; price will follow
IOPS staff members, IOPS alumni	Course fee € 200 Registration fee € 25 Course materials; price will follow
Other participants	Course fee € 600 Registration fee € 25 Course materials; price will follow
Research master students (for this category only a few places are available)	Course fee € 100 Registration fee € 25 Course materials; price will follow

Payment

IOPS will send you an invoice for the due amount shortly before the start of the course.

Cancellation

No refund is made for cancellations after the final registration date of the seminar.

Information and registration

Lidy van Everdingen (IOPS course administration)

Faculty of Social and Behavioral Sciences

P.O. Box 9555

2300 RB Leiden - The Netherlands

E-mail: iops@iops.nl

Voice: +31 71 527 3794 or +31 71 527 3829