

## Introduction

The Priority Programme "Switzerland: Towards the Future" is a research programme of the Swiss National Science Foundation which aims to strengthen the position of the social sciences in Switzerland. Its activities fall into two blocks: thematically-aligned, project-based research on the one hand, and *structural measures* on the other.

One of the structural measures is fostering up-and-coming researchers. In order to offer specifically-targeted support to young researchers, the establishment of a *Post-Graduate Programme* is planned. Among other things, this Programme will aim to provide graduates preparing doctoral theses with an appropriate level of highly-qualified academic training.

The Programme includes *Summer Schools*, at which senior tutors will offer participants concentrated and interdisciplinary instruction in advanced social scientific methodology, and practice in the application of major methods of analysis to concrete sets of data.

The 1997 Summer School is the first to be realized by the Priority Programme. This brochure gives an overview on its topics and its schedules, as well as some general information.



## Courses

### General Remarks

The courses cover methodological topics of high relevance and actuality for the social sciences. They are of interdisciplinary character. The Summer School is open for scholars of all social science disciplines.

The courses are designed for participants (mainly doctoral and post-doctoral students) who have a good knowledge of social science methodology in general and a special interest in learning and applying advanced methods. Practical experience in empirical research is expected, a solid know-how in computer-based analyses is required.

Participants have the possibility to bring and analyse their own data provided that they are suitable for the methods and procedures taught in the respective course.

Computing facilities include DOS/Windows-based PCs, the access to standard statistical software (e.g. SPSS), as well as special software used in the courses.

The courses are scheduled in two blocks with three courses each. The duration of each course is one week. Participants are asked to book for two consecutive courses. There will be an add-on workshop at the end of the second week which can be booked additionally.

### Course Descriptions

#### STEVE BORGATTI, Boston College

##### Plenary talk

"On the definition of structure"

##### Workshop:

"Methods of Qualitative Data Analysis"

This workshop is about formal and systematic methods of qualitative data collection and analysis. The primary orientation is toward understanding how respondents think about a domain of activity. What elements are contained in the domain? What attributes distinguish among these elements? What relationships do the elements have with each other? Specific topics include:

- issues in the coding of text
- algebraic analysis of coded and other binary data (including decision models)
- eliciting, representing and analyzing conceptual/semantic networks
- eliciting the items in a cognitive domain via the freelist technique
- use of pilesort and triad tasks to elicit underlying perceptual dimensions
- use of paired comparison and ranking tasks to measure attributes
- use of multidimensional scaling and cluster analysis to visualize data
- links to quantitative methods such as cultural consensus analysis?

**Steve Borgatti** is Associate Professor of Organization Studies at the Carroll Graduate School of Management, Boston College. He teaches research methods (qualitative and quantitative), social network analysis, and organizational theory. His research interests include social networks and social cognition. Many of his publications concern formal network models of sociological concepts, such as group and role. He is the author of a software package for network analysis and another package for cultural domain analysis.

**DAVID A. KENNY, University of Connecticut**

Plenary talk:

"Learning to live with nonindependence in social interaction data"

Workshop:

" Issues in non-experimental data analysis"

The workshop provides an introduction to a series of issues that arise in the analysis of data, particularly from non-experimental research. The focus is the issues not as statistical problems, but as opportunities to test theory in non-experimental settings. The issues are: the choice of unit analysis with particular emphasis on the study of relationships, quasi experimental design, and tests of mediational hypotheses. Students should have some background in the analysis of variance.

**David A. Kenny** is Professor of Psychology at the University of Connecticut in the United States. His early research area was in analysis of non-experimental data and his book „Correlation and Causality“ was one of the early presentations of structural equation modeling to a social science audience. More recently, he has investigated person perception in naturalistic contexts and is the author of „Interpersonal Perception: A Social Relations Analysis“. Some of the research topics that he is currently studying are agreement in the perception of others, the ability to know how one is viewed by others, and the accuracy of perception of person perception.

**ROLF LANGEHEINE, University of Kiel**

Plenary talk:

"Discrete-time discrete-state latent Markov models with time-constant and time-varying covariates"

Workshop

"Analysis of categorical data using mixed Markov latent class models"

The focus of the seminar will be on purely categorical data, also labeled discrete or nominal data. One approach to analyzing associations between a set of such variables is by using loglinear models. Logit models turn out to be special cases of loglinear models when, e.g., one variable is considered as dependent on some other variables (this is an analog of multiple regression for continuous variables). Only some basic loglinear/logit models will be considered, however. The focus of the course will be on

- The extension to loglinear models with latent variables, with the latter having a few categories or classes, hence the name latent class analysis (LCA). Though LCA offers a variety of categorical data analogs to well-known methodologies for continuous data (such as classification and cluster analysis, factor analysis, structural equation models, scaling models) LCA is still far from belonging to the standard tools of social statistics.

- The extension of latent class models to handle repeated measurements across time (so-called panel data). Recent developments in Markov chain methodology for the analysis of change and stability will be presented.

**Rolf Langeheine** is research scientist at the Department of Educational and Psychological Methodology, Institute for Science Education at the University of Kiel/Germany. His research interests are in environmental and science education and in the analysis of categorical data, with a focus on mixed Markov latent class models for the analysis of repeated measurements. He is a coauthor of the PANMARK software package for latent class and Markov chain analysis and a coeditor of „Latent trait and latent class models“ and „Applications of latent trait and latent class models in the social sciences“.

**GOETZ ROHWER, Max -Planck- Institut für Bildungsforschung**

Plenary talk:

"Causal models for interdependent processes"

Workshop:

"Event History Analysis"

The workshop will give an introduction to event history analysis with special emphasis on sociological applications and life course research. Topics covered will

mainly correspond to the material discussed in H. P. Blossfeld and G. Rohwer, *Techniques of Event History Analysis* (Lawrence Erlbaum, 1995). This includes basic descriptive techniques (life table and product-limit estimation) and transition rate models. In addition, the workshop will provide an introduction into optimal matching methods for describing complex event histories. Exercises will use the computer program TDA (Transition Data Analysis) available on a disk accompanying the above mentioned book.

**Goetz Rohwer** is research fellow at the Max Planck Institute for Human Development, Berlin. His research interests and publications are mainly in the area of methodology and statistical methods for sociological life course research. Together with Hans Peter Blossfeld, he has published „Techniques of Event History Modeling“ (Lawrence Erlbaum, 1995). He is author of the computer program TDA (Transition Data Analysis).

#### **ROBERT ROSENTHAL, Harvard University**

##### Plenary talk:

“The future of significance testing”

##### Workshop:

“Improving Measurement and Data Analysis: composite variables, effect sizes, contrasts, and meta-analysis”

We begin with an overview of the construction of tests and other measures designed especially for workshop members' own research needs, in particular the construction of composite variables, e.g., from rating studies. The relationship between effect size estimation and significance testing is highlighted, and effect sizes are discussed in detail. The use of contrasts to address specific research questions is emphasized, and the relationship of contrasts to effect size estimation is described. Finally, we provide an introduction to and an overview of the topics of meta-analytic procedures in social research.

**Robert Rosenthal** is Edgar Pierce Professor of Psychology at Harvard University. He currently teaches research methods, quantitative procedures, and nonverbal communication. His research interests and publications are in the above areas and in the effects of teachers', supervisors', healers', judges', and others' interpersonal expectations, and how their interpersonal expectations are communicated to others.

#### **BARRY WELLMAN, University of Toronto**

##### Plenary talk:

“Using social networks to analyze relationships and social structure: from personal community to virtual work”

##### Workshop

“Social network analysis”

Social network analysis is the study of structures of relations among people, organizations, states, etc. Social network analysts want to know how relational structures are produced and how they are related to individual behavior and cognition. This course will discuss the conceptual underpinnings of social network analysis. It will show how to use network analytic methods to study whole networks (such as interlocking corporate relations or elite relations) and to study ego-centered networks (such as personal communities and social support networks). In the course of discussions, key substantive findings will be presented.

**Barry Wellman** is Professor of Sociology at the University of Toronto, where he is based at the Centre for Urban and Community Studies. He founded the International Network for Social Network Analysis (INSNA) in 1977. His research interests are in the study of personal community networks and in computer networks as social networks. He has edited „Social Structures: A Network Approach“ and „Networks in the Global Village“. He has published articles about the theory, methods and substance of social network analysis.

#### **DONALD B. RUBIN, Harvard University**

Statistical Laboratory (with R. Rosenthal)

##### Plenary talks:

“The use of propensity scores to estimate causal effects in observational studies”

“Multiple imputation for missing values in social science research”

“Modelling schizophrenic behavior using general mixture components”

“The analysis of randomized experiments with noncompliance and ties with econometric instrumental variables methods”

The range of topics is chosen to correspond to general social science interests (some psychology, sociology, economics, etc.) and illustrates what a future that can rely on more advanced computing might look like. All use real data examples.

**Donald B. Rubin** is Professor in the Department of Statistics, Harvard University. He has nearly 250 publications (including several books), on a variety of topics, including computational methods, causal inference, survey methods, techniques for handling missing data, Bayesian methods, multiple imputation, matched sampling, and applications in many areas of social and biomedical science. Professor Rubin is

a Fellow of the American Statistical Association, the Institute for Mathematical Statistics, the International Statistical Institute, the Woodrow Wilson Society, the John Simon Guggenheim Society, the New York Academy of Sciences, the American Association for the Advancement of Sciences, and the American Academy of Arts and Sciences. He is also the recipient of two of the most prestigious awards available to statisticians: The Samuel S. Wilks Medal of the American Statistical Association and the Parzen Prize for Statistical Innovation.

**ANNETTE SCHERPENZEEL, EPFL Lausanne**

"Introduction to Lisrel" Add-on workshop

The course provides an introduction to the general structural equation system, commonly known as the "LISREL model". The LISREL model is widely used in social and behavioural sciences to study the relationships among variables, some of which can not be directly observed. The course describes the formulation of the model, followed by the estimation testing and correction. In addition, the large variety of models that can be analysed using this methodology is discussed. Learning to use the LISREL program represents an important part of the course. The ideas behind the model, however, extend beyond any specific program.

**Annette Scherpenzeel** currently works for the IREC (Institut de Recherche sur l'Environnement Construit de l'École Polytechnique Fédérale de Lausanne), where she is involved in the design of a Swiss socio-economic panel. Her primary research interests are in methodology and data analysis. Mrs. Scherpenzeel holds a Ph.D. from the University of Amsterdam and has authored journal articles on evaluation of the quality of survey questions. In this context, structural equation models play an important role. During her employment as a researcher for the Dutch PTT Telecom, she sought to apply these techniques in the everyday practice of marketing research.

**COURSE SCHEDULE 1**

	Saturday 19.07.97	Sunday 20.07.97	Monday 21.07.97	Tuesday 22.07.97	Wednesday 23.04.97	Thursday 24.07.97	Friday 25.07.97	Saturday 26.07.97	Sunday 27.07.97
9.00-10.30	Arrival of part. Group 1 faculty meetings.	Preliminary meetings.	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Plenary talks Rubin	FREE
11.00-12.30			Rosenthal Langeheine Wellman	Rosenthal Langeheine Wellman	Rosenthal Langeheine Wellman	Rosenthal Langeheine Wellman	Rosenthal Langeheine Wellman	Rosenthal	
12.30-14.30					Statistical lunch Rubin/Rosenthal				
14.30-16.00					Exercises				
16.00-17.30		opening ceremony Rubin	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Workshops Rosenthal Langeheine Wellman	Rubin Wellman
17.30-19.00		Reception							

\* Invited lectures to be determined

COURSE SCHEDULE 2

	Monday 28.07.97	Tuesday 29.07.97	Wednesday 30.07.97	Thursday 31.07.97	Friday 01.08.97	Saturday 02.08.97	Sunday 03.08.97	Monday 04.08.97	Tuesday 05.08.97	Wednesday 06.08.97
9.00-10.30	Plenary talks Rubin	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	FREE	LISREL Workshop Scherpenzeel	LISREL Workshop Scherpenzeel	LISREL Workshop Scherpenzeel
11.00-12.30	Borgatti	Kenny Borgatti Rohwer	Kenny Borgatti Rohwer	Kenny Borgatti Rohwer	Kenny Borgatti Rohwer	Kenny Borgatti Rohwer				
12.30-14.00				Lunch						
14.00-15.30				Exercises						
16.00-17.30	Langeheine	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer	Workshops Kenny Borgatti Rohwer				
17.30-19.00	Kenny	*	*	*	*	*				

\* Invited lectures to be determined

## General Information

### Admission

Admission is decided by the Commission on Graduate Programmes upon eligibility of applicants and availability of places. Maximum number of participants: 45.

Doctoral students are required to present a confirmation from their professor stating their actual position and recommending their admission to the Summer School.

### Certification

At the end of the Summer School, participants will get a certification confirming the theme and the name of the academic teacher of the courses booked.

### Staff of the 1997 Summer School

Director: Prof. Klaus R. Scherer  
 Scientific coordinator: Dr. Peter Farago  
 Administrative coordinator: Mrs. Hoda Mc Neill

### Site

University of Geneva at Carouge  
 7, route de Drize  
 CH-1227 Carouge

### Accommodation

Accommodation for the participants will be at the Cité universitaire of the University of Geneva.