

# ***Introduction to Structural Equation Modeling***

Summer School organized by the  
**Quebec Inter-university Centre for Social Statistics (QICSS)**

**Location :** CIQSS, 3535 Queen-Mary, room 420, Montréal  
**Dates:** May 22– May 25, 2007

Financial support for this Data Training School is provided by the Social Sciences and Humanities Research Council of Canada, the *Fonds québécois de recherche sur la société et la culture* and the universities affiliated to QICSS<sup>1</sup>.

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## **COURSE OBJECTIVES AND CONTENT**

This intensive, graduate-level, four-day seminar deals with the principles, assumptions, strengths, limitations, and applications of the family of techniques known as structural equation modeling (SEM).

Basic SEM techniques, including path analysis, confirmatory factor analysis (CFA), and full “LISREL” (structural-regression) models, will be covered. Some familiarity with basic statistical techniques, such as multiple regression, is assumed, but higher levels of quantitative knowledge are not required.

Also, the presentation of topics will be conceptually rather than mathematically oriented, and many examples of the application of SEM to different kinds of actual research problems are considered. There will also be a strong emphasis on avoiding common kinds of mistakes in the analysis of structural equation models.

Computer tools for SEM will be described, but more emphasis is placed on conceptual issues that the user of any SEM computer tool needs to know in order to correctly use the tool. More detail about seminar topics can be found in Kline (2005), but this book is not necessary for seminar participants.

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<sup>1</sup> Université de Montréal, INRS-UCS, McGill University, Concordia University, Université Laval, Université du Québec à Montréal, Université de Sherbrooke.

## **TRAINER**

This training session will be under the responsibility of **Rex B. Kline**<sup>2</sup>, associate professor, Department of Psychology, Concordia University.

## **GENERAL COURSE INFORMATION**

The sessions are in English. Morning sessions will be used for theoretical presentations. Some time in the afternoon sessions will be reserved for computer exercises.

## **SCHEDULE**

The seminar is scheduled from 9:30am to 5:30pm, May 22 to May 25.

Day 1:

Fundamental Concepts of SEM: Brief review of multiple regression, data screening and preparation, relation of SEM to other techniques, conceptual elements of all SEM analyses, kinds of SEM models, steps of SEM

Day 2:

Path Analysis: Estimation of structural models with observed variables, types of causal effects and noncausal associations, model specification, estimation methods, introduction to computer tools

Day 3:

Confirmatory Factor Analysis: Specification of measurement models, types of measurement models and identification, data analysis and interpretive issues, more about computer tools

Day 4:

“LISREL” (Structural Regression Models): Specification and analysis of models with both structural and measurement components, identification of “LISREL” models, extension to more advanced models

## **READINGS**

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford Press.

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<sup>2</sup> 514-848-2424, ext. 7556; rbkline@alcor.concordia.ca; <http://psychology.concordia.ca/fac/kline/rexbkline.html>

## **PARTICIPANTS PROFILE**

The course is open to graduate students and postdoctoral fellows as well as to professors and practising researchers. Some familiarity with basic statistical techniques, such as multiple regression, is assumed, but higher levels of quantitative knowledge are not required. The course is open to approximately 15 participants who will be selected on the basis of academic achievement and the relevance of the course to their curriculum, research, or teaching.

## **APPLICATION PROCEDURE**

Those wishing to attend the course are invited to register on our website (<http://www.ciqss.umontreal.ca/>) by completing a registration form and describing the relevance of the course to their research and/or teaching activities.

Graduate students and postdoctoral fellows who are selected to participate will be eligible for a fellowship covering registration fees and, if they live outside the greater Montreal area, transportation costs as well as lodging in the student residences of the Université de Montréal.

Registration fees are **\$200 for students and postdoctoral fellows, \$300 for professors and researchers affiliated with QICSS, \$500 for other university professors and researchers and \$750 for individuals from any other category.** Registration fees must be paid by money order or cheque made out to: QICSS – Université de Montréal; by debit or credit card at our office.

The application deadline for the course is **April 23, 2007**. The results will be announced during the week of **April 30<sup>th</sup>, 2007**.

## **FOR MORE INFORMATION**

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