SSWR Methods Workshop
Thursday, January 12, 2017, 8am – 12 noon

Title: **Title:** Longitudinal and Multi-level Modelling Using R

Presenters:
Din Chen, PhD, School of Social Work, UNC-CH

Abstract
This workshop presents the concepts and intuition for longitudinal and multilevel modeling with detailed step-by-step illustrations and implementation using free software R. Based on more than 20 years' teaching and research experience, I will start with an overview of the well-known regression models for their pitfalls and biases if used to analysis data with longitudinal and multilevel structure and we then introduce how to analyze longitudinal and multilevel data appropriately in a step-by-step fashion implemented in free software R. I will briefly review the R so that the participants are not required to have prior knowledge on R. At the completion of the workshop, participants will have a solid understanding of the challenges and problems in longitudinal and multilevel modelling (including two-level and three-level hierarchical linear models). In addition, participants are able to follow the logic steps and examples in the workshop to analyze their own data.

Objectives

By the end of the workshop, participants will be able to identify, list, describe and/or gain:

- The key scientific rationale and guidelines of longitudinal and multilevel modeling research;
- Steps in the development of longitudinal and multilevel models;
- Advantages and limitations associated with linear regression on parameter estimation, statistical inferences and model diagnostics on normality, homogeneity, and data independence;
- The major principles of R and exposure to using R on longitudinal data; on two-level hierarchical linear models; and on three-level hierarchical linear models
- Applications of longitudinal and multilevel modeling for their own data

Career Level and Prerequisites

This workshop is appropriate for all SSWR attendees who have completed doctoral level coursework in research methods and statistics.

Preferred maximum number of registrations: 30-40

Methods and Approach

Powerpoint presentation with handouts, lecture interspersed with questions and answers, software demonstration, and discussion.

Presenter Bio:

Dr. Din Chen is the Wallace H. Kuralt Distinguished Professor and Director of Consortium for Statistical Development and Consultation at the School of Social Work, UNC-Chapel Hill. He was a professor in biostatistics at the University of Rochester and the Karl E. Peace endowed eminent scholar chair in biostatistics from the Jiann-Ping Hsu College of Public Health at the

Georgia Southern University. Dr. Chen has more than 100 referred professional publications and co-authored/co-edited 9 books on randomized clinical trials, statistical meta-analysis, public health statistical methods, causal inferences and statistical Monte-Carlo simulations. He is honored as an elected fellow of American Statistical Association.