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**THE NEBRASKA CENTER  
FOR RESEARCH ON CHILDREN, YOUTH, FAMILIES AND SCHOOLS**

**Is Pleased to Present the Spring 2006**

**Research Methodology Series**

The Research Methodology Series is an ongoing effort by the Nebraska Center for Research on Children, Youth, Families and Schools (CYFS) to provide information to social science researchers about important and cutting-edge research methodology and statistical approaches. Series presenters include personnel from the CYFS Statistics and Research Methodology Unit, along with invited guests.

**Mediator and Moderator Variables  
in Social Science Research**

**February 24, 2006, 11:30 AM – 1:00 PM  
270 Mabel Lee Hall, UNL City Campus**

**Tzu-Yun (Katherine) Chin, MS  
Director, CYFS Statistics and Research Methodology Unit**

Questions about “HOW, WHY and WHEN interventions work” are as important as the question “does the intervention work.” Moderators specify for whom and under what conditions an intervention works whereas mediators identify possible mechanisms through which an intervention might achieve its effects. Identifying mediators and moderators is a step toward uncovering potential mechanisms that explain an intervention outcome. Unfortunately, there is often confusion concerning the difference between a mediator variable and a moderator variable. In this presentation, definitions delineated by Baron and Kenny (1986) and Kraemer, Wilson, Fairburn and Agras (2002) will be discussed. Statistical methods for evaluating mediation and moderation effects under a regression framework will be presented.

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**Structural Equation Modeling:  
Implications for Testing Mediators and Moderators**

**March 24, 2006, 11:30 AM – 1:00 PM  
270 Mabel Lee Hall, UNL City Campus**

**Jim Bovaird, PhD  
Assistant Professor, Department of Educational Psychology**

Structural equation modeling (SEM) is a flexible multivariate analytic technique that allows researchers to test global hypotheses about competing theories as well as simultaneous testing of multiple specific hypotheses such as those usually tested with ANOVA and regression. Two important strengths of SEM are the capability to disattenuate the effects of measurement error and the capacity to test indirect and total effects in addition to simple direct effects. These strengths represent important advances over traditional general linear model approaches and have important implications in testing hypotheses involving mediation and moderation. This presentation will discuss how the methodological advances inherent to the SEM framework can be used specifically to better test hypotheses of mediation and moderation.

**Research Design 1:  
Designing Effective Intervention Research**

**April 21, 2006, 11:30 AM -12:45 PM  
242 Mabel Lee Hall, UNL City Campus**

**Todd Glover, PhD  
Research Assistant Professor, CYFS  
Jim Bovaird, PhD  
Assistant Professor, Department of Educational Psychology**

Several considerations are particularly important in designing effective and fundable intervention research. Researchers who conduct effective intervention research make strategic decisions about the selection and assignment of participants to study conditions, the operationalization of the intervention delivery process, and the need to control for confounding variables that affect the interpretation of research findings. This presentation will include a discussion of important research design considerations that can improve the quality of intervention research by addressing common threats to internal validity (e.g., Campbell & Stanley, 1966; Shadish, Cook, & Campbell, 2002) and generalizability.

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**Research Design 2:  
Power Analyses and Sample Size**

**April 28, 2006, 11:30 AM – 1:00 PM  
270 Mabel Lee Hall, UNL City Campus**

**Brett Foley, MS  
Predoctoral Intern, CYFS Statistics and Research Methodology Unit**

Conducting a statistical power analysis to determine the appropriate sample size for a study is critically important for the success of a study and required by funding agencies. Statistical power analyses help a researcher determine the number of participants necessary to detect scientifically important differences. They are also helpful for reducing resource strain caused by overly large study samples. This presentation will discuss the differentiation between statistical power and study efficacy or effectiveness. The factors that influence statistical power will be discussed as well as how researchers and statisticians can most effectively collaborate to optimally design a study.