THE UNIVERSITY OF ARIZONA
Mel & Enid Zuckerman College of Public Health

College Wide Seminar presents:

John Neuhaus, Ph.D.

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Division of Biostatistics
University of California, San Francisco

Wednesday, October 14th, 2015
12 PM-12:50 PM
Drachman Hall, Room A114

"Covariate decomposition methods for consistent estimation with generalized linear mixed models in settings with data missing-at-random and omitted covariates"

Abstract: Investigators often gather longitudinal data to assess changes in responses over time within subjects and to relate these changes to within-subject changes in predictors. Missing data and omitted covariates are common in such studies and this talk studies the setting where both are present. Maximum likelihood methods for generalized linear mixed models provide consistent estimates when the data are "missing at random" (MAR) but can produce inconsistent estimates in settings where omitted cluster-level covariates are correlated with one of the predictors. On the other hand, conditional maximum likelihood methods and closely related maximum likelihood methods based on covariate decompositions for generalized linear mixed models provide consistent estimation in settings with omitted cluster-level covariates but can produce inconsistent covariate effect estimates when data are "missing at random" (MAR). Using theory, simulation studies, and fits to example data, this talk shows that decomposition methods using complete covariate information produce consistent estimates. In some practical cases these methods, that ostensibly require complete covariate information, actually only involve the observed covariates. These results offer an easy-to-use approach to simultaneously protect against bias from both omitted cluster-level covariates and MAR missingness.

John Neuhaus received his Ph.D. in biostatistics from the University of California, Berkeley in 1987. Upon graduation, he joined the faculty of the Department of Epidemiology and Biostatistics at the University of California, San Francisco where he is currently a Professor of Biostatistics. He has held visiting appointments at the University of Waterloo in Canada, the University of Auckland, New Zealand and at the Universidade Tecnica de Lisboa, Portugal where he was a Fulbright scholar. He is a Fellow of the American Statistical Association and the Royal Statistical Society. His research interests include methods for analyzing clustered and longitudinal data and assessment of the effects of model misspecification.

Hosted by the Department of Epidemiology and Biostatistics. Please contact Laura Shriver, shriverl@email.arizona.edu or 626-7914