



**DIVISION OF STATISTICS  
NORTHERN ILLINOIS UNIVERSITY  
Colloquium**

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**TITLE: The mixture representation of regression models with covariate misclassification**

**DATE: Friday September 30, 2016**

**TIME: 2:00 p.m.**

**PLACE: DUSABLE HALL 212**

**Abstract**

We study the mixture representation of regression models, when a categorical covariate is subject to misclassification. The representation reveals the identifiability of regression models with a categorical covariate that is subject to non-differential misclassification. The results are applicable to a broad class of regression models including generalized linear models, when the component mixture is identifiable. While prevailing methods require multiple surrogates, or information/validation data on the misclassification probabilities, we show that valid inference can be performed on all the parameters when no such information is available. Although the representation arises naturally from Bayesian analysis, the models can be implemented using both Bayesian and frequentist approaches. The methodology is applied to adjust for misclassification on the self-reported compliance status in a clinical trial on the intermittent positive pressure breathing (IPPB) therapy.