



**THE UNIVERSITY OF GEORGIA  
DEPARTMENT OF STATISTICS**

# *Colloquium Series*

## **Brady West**

*University of Michigan*

**Tuesday, April 9, 2019**

3:30pm in room 434, Brooks Hall

### **How non-ignorable is the selection bias in non-probability samples. An illustration of new measures using a large genetic study on Facebook.**

Survey researchers are currently evaluating the utility of "big data" that are not selected by probability sampling. Existing indices of the degree of departure of non-probability samples from representative probability samples, such as the R-Indicator, are agnostic about the relationship between the inclusion probability and survey outcomes, which is crucial to understanding the risk of selection bias in non-probability samples. We describe simple model-based indices of the degree of departure from ignorable selection for estimates of means and proportions that correct this deficiency: the standardized measure of unadjusted bias (SMUB) for means of continuous variables, and the measure of selection bias (MSB) for proportions based on binary variables. We then use a simulation study based on real data from the National Survey of Family Growth to evaluate the ability of the proposed indices and other existing indices to detect non-ignorable selection bias. Finally, we apply the proposed indices to data from the Genes for Good project at U of M, which recruits a non-probability sample of study volunteers via Facebook, using genetic data from the Health and Retirement Study as a population benchmark.

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