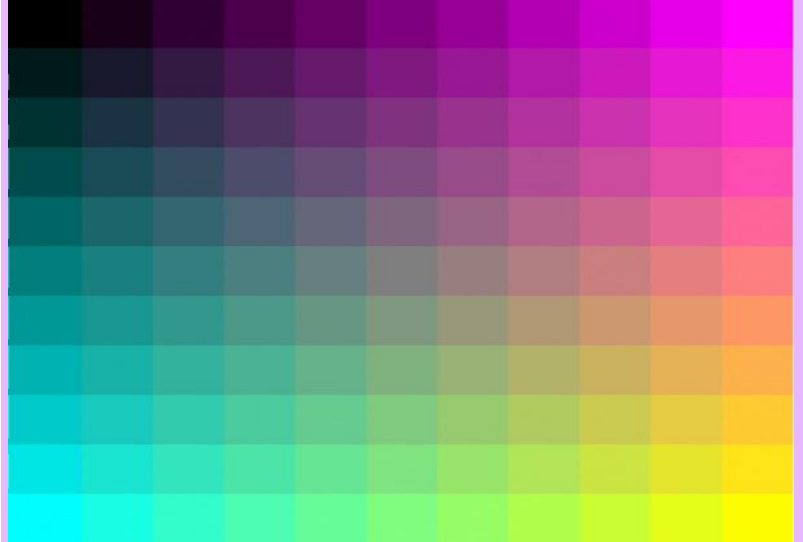
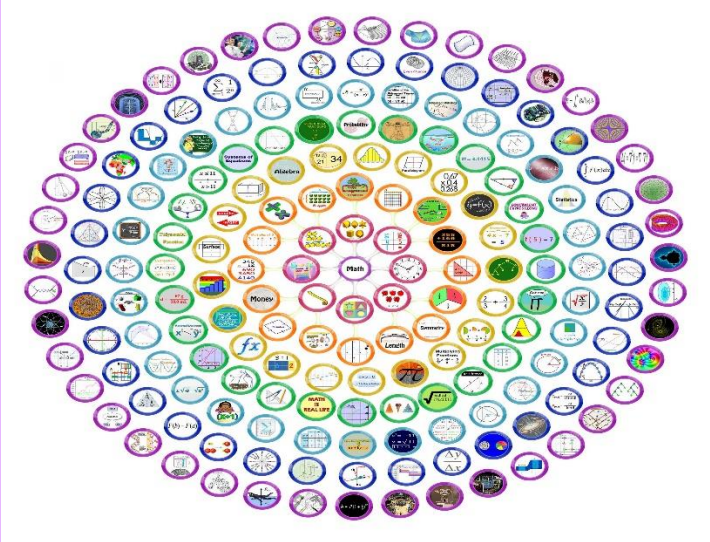


# COLLOQUIUM



2-22-23

**Bhaskar Bhattacharya,**  
**SIUC**

School of Mathematical &  
Statistical

Sciences Southern Illinois  
University

Place: Neckers 156

Time: 3:00pm

Reception immediately  
following in the Math Library.

**Title:** Effect of misspecification of dependence in  
constrained statistical inference

**Abstract:** The assumption of independent observations that underlies many statistical procedures is called into question when analyzing complex survey data. In clustered data, for example, two-stage samples exhibit positive intra-cluster correlation. Wu, et. al. (1988) showed that ignoring such correlations leads to serious consequences such as much larger variances of the estimates of regression coefficients and inflated type I error rates of the corresponding F-statistic. Misspecification of dependence in observations can happen in a more general setup beyond clustered data. We investigate how to adjust the conventional statistical inference in presence of inequalities when dependent samples are taken from the normal distribution. We extend the study to hypotheses testing in a constrained regression model. We analyze Covid data from 2020 to investigate the presence of trend using the procedure developed.