

# **COLLOQUIUM**

DEPARTMENT OF MATHEMATICS AND STATISTICS  
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## **STATISTICAL TESTING WHEN THE POPULATIONS FROM WHICH SAMPLES ARE DRAWN ARE UNCERTAIN**

### **Abstract**

The topic of this presentation is statistical hypothesis testing when the populations from which the data are drawn are known only with a given probability distribution. Some important areas of application for which such a situation arises will be noted briefly. The specific cases to be considered are testing a one-sided hypothesis involving two populations. An illustrative small data set, involving six observations, is used to demonstrate relevant approaches and calculations for such testing. Both a frequentist approach and a Bayesian approach will be discussed. In both approaches, use is made of all possible data configurations along with their corresponding probabilities. Various measures of goodness are put forth for each of the two approaches. A simulation approach will be described for larger data sets.

**Tuesday, September 17, 2019**  
**12:00 – 12:50 P.M.**  
**372 Mathematics and Science Center (MSC)**

(Refreshments at 11:30-12:00 PM in the kitchen area adjacent to 368 MSC)