



AMERICAN UNIVERSITY

WASHINGTON, D C

DEPARTMENT OF MATHEMATICS AND STATISTICS

The Department of Mathematics and Statistics Colloquium

## **The Mismeasure of Group Differences in the Law and the Social and Medical Sciences**

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### **ABSTRACT**

In the law and the social and medical sciences efforts to appraise the size of differences reflected by rates at which demographic groups experience an outcome generally rely on relative differences in favorable or adverse outcomes, absolute differences between rates, and odds ratios. These measures are problematic because they tend to be systematically affected by the overall prevalence of an outcome. Most notably, the rarer an outcome the greater tends to be the relative difference in experiencing it and the smaller tends to be the relative difference in avoiding it. Thus, for example, lowering test cutoffs tends to increase relative differences in failure rates while reducing relative differences in pass rates; reducing mortality tends to increase relative differences in mortality while reducing relative differences in survival; relaxing lending criteria tends to increase relative differences in loan rejection rates while reducing relative differences in loan approval rates. Absolute differences and odds ratios tend also to be affected by the overall prevalence of an outcome, though in a more complicated way than the two relative differences. This presentation will illustrate these patterns and explain how the failure to understand them undermines appraisals of group differences. It will also explain a sound method for measuring the difference reflected by a pair of outcome rates.

**Time/Date:** 2:50pm, Tuesday, September 25th, 2012.

**Location:** Bentley Lounge, Gray Hall, American University.

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**Direction:** Metro RED line to Tenleytown-AU. AU shuttle bus stop is next to the station. Please see the campus map below or visit <http://www.american.edu/media/directions.cfm> for more details.

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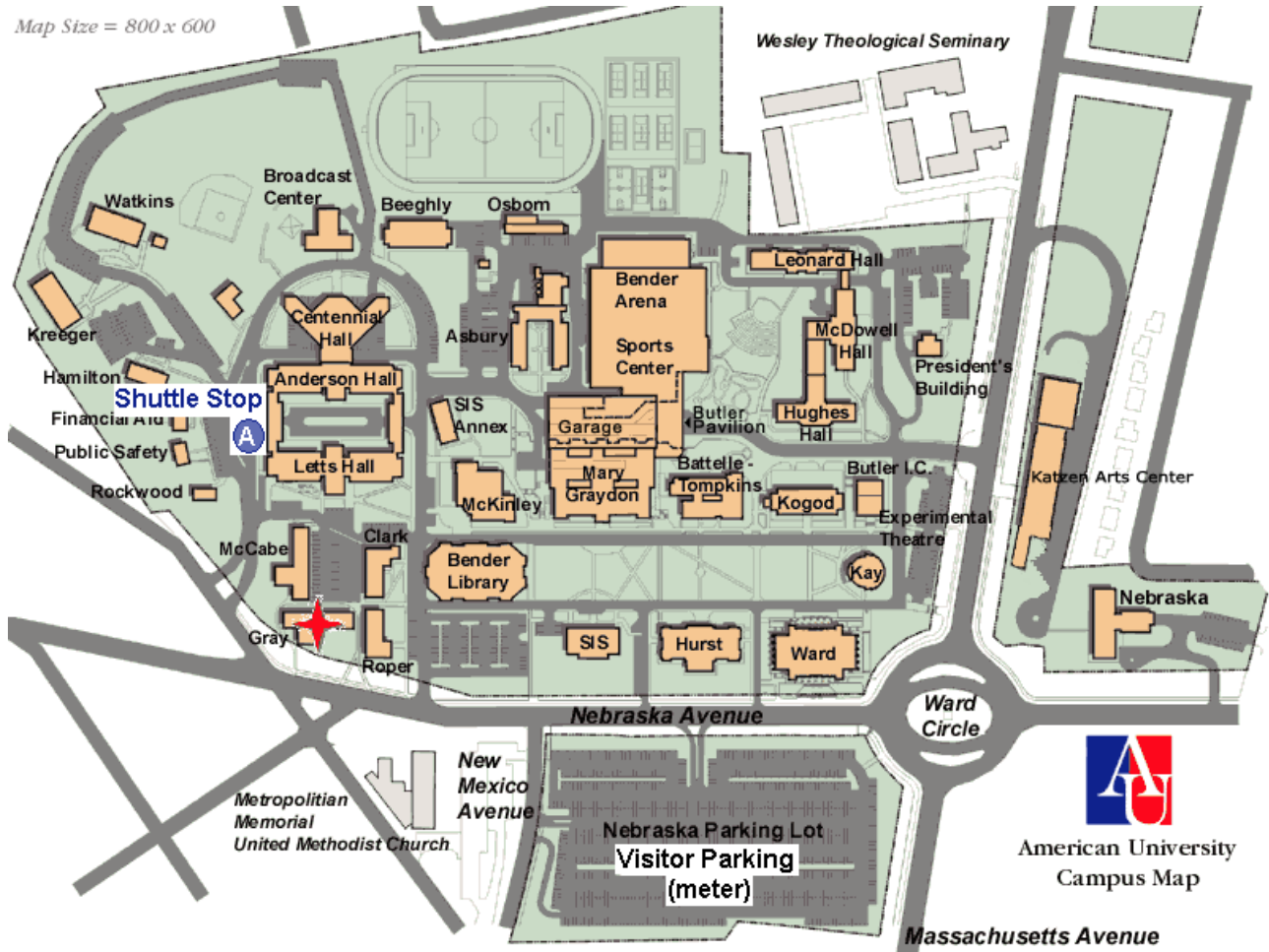
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