

**The Fourth Annual  
Janet L. Norwood Award  
For Outstanding Achievement by a Woman  
in the Statistical Sciences**

**Dr. Clarice R. Weinberg**

Friday, October 15, 2005

9:30 AM

Alys Stephens Center  
Reynolds-Kirschbaum Recital Hall  
1200 Tenth Avenue South  
Birmingham AL

**Seminar Topic:**

Finding genes related to conditions with onset early in life

**Seminar Abstract:**

For complex but rare conditions, such as birth defects, where common genetic variants confer a fairly small relative increase in risk, pedigree-based linkage studies have limited ability to localize the relevant genes. For such conditions, geneticists can use other approaches, such as family-based or population-based association studies. This talk will provide an overview of some recent approaches to association mapping. Likelihood-based methods of analysis based on genotyping affected individuals and their parents, as a “triad,” allow for use of standard software, permit estimation of relative risks, provide robustness against bias due to self-selective recruitment and population stratification, and allow for extensions that can account for missing parental genotypes, for maternally-mediated genetic effects, and for parent-of-origin effects. A recently developed hybrid design augments the case-parent-triad design by including the parents of unaffected controls. Such a design allows one to exploit the advantages of both family-based and population-based studies, greatly enhances statistical power, and also permits testing for bias due to population stratification.