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DEPARTMENT OF STATISTICS AND BIostatISTICS
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Seminar

Speaker: **Professor Elizabeth Slate**
Department of Statistics
Florida State University

Title: **Biomarker Discovery in Heterogeneous Populations**

Time: **3:20 – 4:20pm, Wednesday, April 29, 2015**

Place: **552 Hill Center**

Abstract

Identification of valid, clinically relevant biomarkers for disease has potential to provide less invasive diagnostic tools, to enhance understanding of initiation and progression at the cellular level, and to guide development of new therapeutic agents. When the biomarkers are binary, the technique of logic regression seeks Boolean combinations of the markers strongly associated with outcome. The interpretability of these Boolean marker combinations and, potentially, additional interactions with environmental and behavioral characteristics, is appealing and can provide insight. However, complex diseases such as cancer that arise from multiple pathways and present at varying stages of development and progression can lead to hidden population heterogeneity in the biomarker-disease association. I will describe an extension of logic regression that uses a latent class structure to accommodate this subpopulation heterogeneity. Estimation and inference are performed both via maximum likelihood and also within a fully Bayesian semiparametric formulation. Simulation and application indicate the potential of this latent class logic regression for improving identification of predictive biomarker interactions.

**** Refreshments will be served @2:50pm in Room 502 Hill Center ****