

**Department of Biostatistics**  
Monthly Seminar Series

Thursday, September 14, 2017

2:45pm – 4:00pm

Erma Byrd 101

Speaker:

Sijin Wen, PhD

Assistant Professor, Biostatistics

Topic:

**A Bayesian Multivariate Joint Frailty Model for Disease  
Recurrences and Survival**

Abstract:

Most of the research that I am engaged in is motivated by cancer research. In this presentation, I will start with a brief overview of my research interests including statistical designs for clinical trials, survival analysis and bioinformatics, and follow by an example motivated by a study for soft tissue sarcoma.

The study considers the analysis of diseases recurrence and survival. A multivariate frailty hazard model is established for joint-modeling of three correlated time-to-event outcomes: local disease recurrence, distant disease recurrence and death. The goals are to examine (1) the effects of chemotherapy on local and distant disease recurrences, and death, (2) the effects of local and distant disease recurrences on death, and (3) the correlation between local and distant recurrences. By our approach, all these three important questions, which are commonly asked in similar medical research studies, can be answered by a single model. We put the proposed joint frailty model in a Bayesian framework, and use a hybrid Monte Carlo algorithm for the computation of posterior distributions. Simulation studies are conducted to assess the proposed joint frailty model and the computation algorithm. The motivating soft tissue sarcoma data set is analyzed.

**The next monthly seminar will be held October 12, 2017**