

The George Washington University
Department of Statistics
Fall 2005

SEMINAR ANNOUNCEMENT

Title: Bayesian Social Network Models with Acute Outcomes

Speaker: Dr. Yasmin H. Said
George Mason University

Abstract: I begin by introducing the concept of DALYs, Disability Adjusted Life Years and indicate that alcohol abuse is a major risk factor in public health. I give an illustration of exploratory analysis of the consequences of alcohol abuse using some contemporary visualization software. Alcohol abuse also leads to violence related acute outcomes for both society and individuals. Among these, I identify DWI crashes with fatalities, assault and battery, suicide, murder, sexual assault, domestic violence, and child abuse. Alcohol abusers are embedded in a social network that involves the user, family and friends, producers and distributors of alcohol products, law enforcement, the judiciary, remediation, education, detox and treatment facilities, which are coupled to insurance and managed-care programs. This complex network is reminiscent of more traditional biologic ecology systems, hence the name. The basic idea is to formulate a model of this network with the goal of exploring short- and long-term interventions that reduce the overall probability of acute outcomes. The framework that is being pursued is a dynamic agent-based simulation. The basic model is a stochastic directed-graph model that follows agents (sometimes referred to as actors or individuals) through a 24-hour period. The stochastic directed graph has two major features that are being developed. First, I engage in what I call scenario development. This involves development of scenarios of typical behaviors throughout a day for nonusers, casual drinkers, alcohol abusers, and alcoholics. Associated with these scenarios, I am developing methods for estimation of transition probabilities from state to state during the day reflecting different behaviors and specific to both ethnic groups and geographic location. It is clear that models of this type can be used to investigate negative effects of drugs post FDA approval. Also, it is clear that a similar model structure of social networks can be applied to terrorists networks with the same ability to examine interventions in order to assess their effectiveness.

Date: Friday, December 2, 2005

Time: 4:00 pm - 5:00 pm

Location: Rome Hall (801 22nd Street NW), Room 351