# PSTAT — Statistics and Applied Probability
## UNIVERSITY OF CALIFORNIA, SANTA BARBARA

## Seminars

### Seminars 2010-2011

**Upcoming**

WEDNESDAY January 12, South Hall 5607F, 3:30 PM, Refreshments served at 3:15 PM

Dr. Mike Ludkovski and Dr. Jarad Niemi (UCSB Statistics and Applied Probability)

Title: Optimal Dynamic Policies for Influenza Management

Abstract: Management policies for influenza outbreaks balance the expected morbidity and mortality costs versus the cost of intervention policies. We present a methodology for dynamic determination of optimal policies in stochastic compartmental models with parameter uncertainty. Our approach is simulation-based and searches the full set of sequential control strategies. For each time point, it generates a policy map describing the optimal intervention to implement as a function of outbreak state and Bayesian parameter posteriors. As a running example, we study a fully observed stochastic SIR model with isolation and vaccination as two possible interventions. Numerical simulations based on a classic influenza outbreak are used to explore the impact of various cost structures on management policies. We also discuss more complex inference schemes based on incomplete observations.

This talk is geared towards graduate students and will combine both statistical and probabilistic techniques.

Paper URL: http://www.bepress.com/scid/vol2/iss1/art5

WEDNESDAY January 19, South Hall 5607F, 3:30 PM, Refreshments served at 3:15 PM

Prof. George Moustakides (University of Patras, Greece)

Title: Sequential rate change detection in Poisson processes

Abstract: We consider the Cumulative Sum (CUSUM) test as a possible candidate for sequential detection of an abrupt change in the rate of a homogeneous Poisson process. We first derive a closed form expression for the average run length of the CUSUM stopping time, which we use to prove optimality of the CUSUM test in the sense of Lorden. Specifically, we demonstrate that the CUSUM stopping time minimizes the maximal possible conditional detection delay under the constraint that the average period between false alarms is no less than a prescribed value. We then consider a special category of rate changes in non-homogeneous Poisson processes and we show that the optimality of CUSUM extends to this more general class, provided that we suitably modify our initial performance measure. We conclude our presentation by discussing the applicability of the non-homegeneous Poisson detection problem to Epidemic surveillance.

WEDNESDAY February 2, South Hall 5607F, 3:30 PM, Refreshments served at 3:15 PM

Prof. Dongseok Choi (Oregon Health and Science University)

Further information to be announced

WEDNESDAY February 9, South Hall 5607F, 3:30 PM, Refreshments served at 3:15 PM

Prof. Olympia Hadjiliadis (CUNY)

Further information to be announced

**Past**

WEDNESDAY October 6, South Hall 5607F, 3:30 PM, Refreshments served at 3:15 PM

Prof. Sreenivas Jammalamadaka (UCSB Statistics and Applied Probability)

Title: Gaps between Observations – What can one learn from them?

Abstract: This talk will provide an overview of some of the main ideas in the theory of spacings, i.e. the gaps between successive observations. After reviewing some basic properties of spacings, their use in testing statistical hypotheses and in estimating