Department of Statistics & Biostatistics
Hill Center, Room 501
School of Arts & Sciences
Rutgers, The State University of New Jersey
110 Frelinghuysen Road.
Piscataway, New Jersey 08854-8019

www.stat.rutgers.edu
office@stat.rutgers.edu

848-445-2690
Fax: 732-445-3428

RUTGERS UNIVERSITY
DEPARTMENT OF STATISTICS AND BIOSTATISTICS
www.stat.rutgers.edu

Seminar

Speaker: **Professor Eric Marchand**
Universite de Sherbrooke (Quebec, Canada)

Title: **On Predictive Density Estimation: A Selection of Recent Developments**

Time: **3:20 – 4:20pm, *Wednesday*, October 16, 2013**

Place: **552 Hill Center**

Abstract

We consider the problem of predictive density estimation under Kullback-Leibler loss with a particular focus on cases where the parameter space is restricted to a convex subset. The principal situation analyzed relates to the estimation of an unknown p-variate normal density based on observations generated by another p-variate normal density. The means of the densities are assumed to coincide, the covariance matrices are known multiple of the identity matrix. We obtain sharp results concerning plug-in estimators, we show that the best unrestricted invariant predictive density estimator is dominated by the Bayes estimator associated with a uniform prior on the restricted parameter space, and we obtain minimax results for cases where the parameter space is (i) a cone, and (ii) a ball. A key feature, which we will describe, is a correspondence between the predictive density estimation problem with a collection of point estimation problems. Finally, if time permits, we describe recent work concerning : (i) non-normal models, and (ii) analysis relative to other loss functions such as reverse Kullback-Leibler and integrated L2 .

References.

1) Dominique Fourdrinier, Éric Marchand, Ali Righi, William E. Strawderman. On improved predictive density estimation with parametric constraints, Electronic Journal of Statistics 2011, Vol. 5, 172-191.

2) Tatsuya Kubokawa, Éric Marchand, William E. Strawderman, Jean-Philippe Turcotte. Minimaxity in predictive density estimation with parametric constraints. Journal of Multivariate Analysis, 2013, Vol. 116, 382-397.

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