



The University of Chicago
Department of Statistics

Seminar Series

DAVID DEGRAS

Department of Statistics
The University of Chicago

**Nonparametric Estimation and Inference
for the Trend in a Functional Dataset**

MONDAY, January 26, 2009 at 4:00 PM
133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110.

ABSTRACT

In various application fields such as internet traffic monitoring, medical imagery, or signal processing, modern technology has allowed for the routine collection of data from populations with a high temporal and/or spatial resolution. Such datasets are commonly termed functional data and should be viewed as collections of curves or functions rather than high-dimensional vectors. In this talk we look into the nonparametric estimation of the trend in a functional dataset. We elaborate some asymptotic theory as the numbers of sampled curves and design points go jointly to infinity. In particular we study the consistency and the convergence rate of general linear nonparametric estimators, giving results that generalize the related literature. We also derive asymptotic normality results and apply them in simultaneous confidence intervals or bands procedures. Some simulations indicate that these procedures are somehow more efficient than the classical Scheffé or Bonferroni methods. Finally, we present an ongoing research to test the fit of parametric models for the trend.