

STATISTICS COLLOQUIUM

THURSDAY, DECEMBER 13, 2007

TALK: 4:00 PM — SCIENCE CENTER RM. 705

RECEPTION: 5:15 PM — SCIENCE CENTER, 7TH FLOOR

“Functional Data Analysis: Prediction and Classification”

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ABSTRACT

Functional data arises commonly in different fields of applied sciences including, for example, chemometrics, medicine, and econometrics. There has been substantial recent work on methods for estimating the slope function in functional linear model. In this talk we consider prediction in functional linear regression. We show that the problems of slope-function estimation, and of prediction from an estimator of the slope function, have very different characteristics. While the former is intrinsically nonparametric, the latter can be either nonparametric or semiparametric. More generally, the rate of convergence of the predicted value of the mean response in the regression model, given a particular value of the explanatory variable, is determined by a subtle interaction among the smoothness of the predict and, of the slope function in the model, and of the auto covariance function for the distribution of explanatory variables. This is joint work with Peter Hall. Time permitting, we will also discuss classification with functional data in the context of chemical identification.

<http://www-stat.wharton.upenn.edu/~tcai/>