ECO2400 Econometrics, Part I

Course Goal: This is the first half of ECO2400 for Fall 2015 (ends on Oct 26st). This half covers some basic statistical concepts and discusses some main estimation methods and their theoretical properties. Lectures will be held twice a week on Monday 11-1pm (BA 1210) and Wednesday 11-1pm (SK 720).

Instructor: Jiaying Gu (`jiaying.gu@utoronto.ca`), Room 270

Office Hours: Wednesday 3:30pm - 5:30pm

TA: Mathieu Marcoux (`mathieu.marcoux@mail.utoronto.ca`).

Reference: Statistics and Econometric Models (Gourieroux and Monfort, 1995, we will cover Chapter 1-3, 5-7, 8.4 (maybe 8.5 if time permits) and 9.).

Course work : This part of the course consists 2 problem sets and 1 midterm exam (October 26st, in class 2 hours closed-book exam).

Course Contents :

1. Introduction (Ch. 1-2)
    a) Statistical model, estimator, comparison of estimators
    b) Review of some useful mathematical statistical tools (distribution, transformation, exponential family, etc)
2. Statistical information (Ch. 3)
    a) Sufficiency and ancillary
    b) Information measures (KL distance, Fisher Information)
3. Unbiased Estimation (Ch. 5-6)
    a) Desired property: invariance, unbiasedness, efficiency
    b) Linear model and best linear unbiased estimator
4. Maximum likelihood estimation (Ch. 7, Ch. 8.4-8.5)
    a) Maximum likelihood estimator
    b) Finite sample property
    c) Asymptotic property
    d) Pseudo MLE
    e) Estimation of a conditional median (if time permits)

5. Methods of Moment estimation (Ch. 9)
   a) Instrumental variable estimator
   b) Generalized method of moment estimator