

STAT 7350, CRN 24815
Estimating Functions and Estimating Equations
Winter 2013

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Office Hours: 9:30-10:20 A.M. Monday, Wednesday & Friday
(or by appointment)

This course will outline the main features of the theory of estimating functions. Applications in several areas will be discussed, with some emphasis on time series.

1. Estimating function/equations and point estimators
 - examples
 - unbiasedness of the maximum likelihood estimating equation (score = 0)
 - method of moments
 - transform based methods
 - minimum distance methods
2. Solution of estimating equations
 - numerical methods
 - multiple root problems
3. Optimality of estimating functions (for point estimation)
 - optimality criteria
 - optimality of the score function
 - optimal combinations of estimating functions
 - applications in quasi-likelihood
 - generalized estimating equations
4. Asymptotic properties of estimators which are solutions of estimating equations
 - consistency
 - asymptotic normality
5. Estimating functions and nuisance parameters
6. Interval estimation based on estimating functions

Grading Scheme: The final grade will consist of assignments (50%) and one project report (50%).

Voluntary Withdrawal: March 20, 2013

Academic Dishonesty: It is important that you understand what constitutes academic dishonesty and that you are familiar with the very serious consequences. Please be familiar with the information contained in the General Academic Regulations _ Academic Integrity section of the Academic Calendar (see <http://umanitoba.ca/calendar>). The Faculty of Science home page at www.umanitoba.ca/science also contains links regarding academic and disciplinary matters (under Undergraduate Studies).