

Preliminary Outline for ECO 519, Spring 2006

(This draft: April 19, 2006)

These will be the general topics covered in the course, a list of references for asymptotic theory is included. References for the other topics will be provided before classes begin. I reserve the right to add/drop references throughout the course.

I. Asymptotic Theory: We will split this topic into two: “Classical” Asymptotic Theory and Empirical Processes Theory.

Outline of references for asymptotic theory:

Andrews, D.W.K (1994) “Empirical process methods in econometrics”, in *Handbook of Econometrics, Vol. 4*

Billingsley, P. (1999) *Convergence of Probability Measures, Second Edition.*

Huber, Peter J (1967) “The behavior of maximum likelihood estimates under nonstandard conditions”, in *Proceedings of the Fifth Berkeley Symposium in Mathematical Statistics and Probability*, 1, 221 – 233.

Kim, J., Pollard, DB (1990). “Cube root asymptotics”. *Annals of Statistics* 18, 191 – 219.

Newey W.K and D. McFadden (1994) “Large sample estimation and hypothesis testing”, in *Handbook of Econometrics, Vol. 4.*

Pakes, A. and D. Pollard (1989) “Simulation and the asymptotics of optimization estimators”, *Econometrica*, 57, 1027 – 1057.

Pollard, David (1984) *Convergence of Stochastic Processes*

Pollard, David (1990) *Empirical Processes: Theory and Applications*

Powell, J.L (1984) “Least absolute deviations estimation for the censored regression model”, *Journal of Econometrics*, 32, 143 – 155.

Sherman, R.P. (1993) “The limiting distribution of the maximum rank correlation estimator”, *Econometrica*, 61, 123 – 137.

Sherman, R.P. (1994) “U-processes in the analysis of a generalized semiparametric regression estimator” . *Econometric Theory*, 10 : 372 – 395.

van der Vaart, A. (1998) *Asymptotic Statistics*

van der Vaart, A. and J. Wellner (1996) *Weak Convergence and Empirical Processes*

II. Semi-nonparametric and robust methods.

Ahn, H. and J.L Powell (1993) “Semiparametric Estimation of Censored Selection Models with a Nonparametric Selection Mechanism”, *Journal of Econometrics*, 58, 3-29.

Ahn, H. and C.F Manski (1993) “Distribution Theory for the Analysis of Binary Choice under Uncertainty with Nonparametric Estimation of Expectations”, *Journal of Econometrics*, 56, 291-321.

Powell, Stock and Stoker (1989) “Semiparametric Estimation of Index Coefficients”, *Econometrica*, 57, 1403-1430.

Andrews, D.W.K (1994) “Asymptotics for Semiparametric Econometric Models Via Stochastic Equicontinuity”, *Econometrica*, 62, 43-72.

Andrews, D.W.K (1995) “Nonparametric Kernel Estimation for Semiparametric Models”, *Econometric Theory*, 11, 560-596.

Han, A.K (1987) “Nonparametric Analysis of a Generalized Regression Model”, *Journal of Econometrics*, 35, 303-316.

Horowitz, J.L. (1992) “A Smoothed Maximum Score Estimator for the Binary Response Model”, *Econometrica*, 60, 505-531.

Manski, C.F (1975) “The Maximum Score Estimation of the Stochastic Utility Model of Choice”, *Journal of Econometrics*, 3, 205-228.

Powell (1994) “Estimation of Semiparametric Models”, in R. Engle and D. McFadden, eds. *Handbook of Econometrics*, Vol. 4, 2443-2521.

Klein R.W and R.H Spady (1993) “An Efficient Semiparametric Estimator of Binary Response Models”, *Econometrica*, 61, 387-421.

Sherman, R. (1993), “The Limiting Distribution of the Maximum Rank Correlation Estimator”, *Econometrica*, 61, 123-137.

Sherman, R. (1994), “U-Processes in the Analysis of a Generalized Semiparametric Regression Estimator”, *Econometric Theory*, 10, 372-395.

Newey, W. (1990), “Semiparametric Efficiency Bounds”, *Journal of Applied Econometrics*, 5, 99-135.

Honore, B.E and J.L. Powell (2001) “Pairwise Difference Estimators for Nonlinear Models” (can be downloaded from Jim Powell’s website).

Books:

Pagan, A. and A. Ullah (1999) *Nonparametric Econometrics*, Cambridge University Press

Silverman (1986) *Density Estimation for Statistics and Data Analysis*, Chapman and Hall.

III. Quantile regression and related topics (includes nonseparable models).

IV. Endogeneity in nonlinear models.

V. Identification. We will discuss Nonparametric identification (with some emphasis on Auction estimation) and partially identified models (which is in fact a more general topic), incomplete models and set-estimation.

VI. Interactions-based econometric models.

We will make a strong emphasis on asymptotic theory, as this will allow us to go through the remainder of the course with relative ease. The concepts reviewed will be crucial for the Econometrics General Examination. Other than starting with asymptotic theory, there is no entirely satisfactory sequence of topics, as there is vast overlapping between them.

Sometimes we will have to “introduce” concepts more than once. Some papers and book chapters will be relevant for more than one topic. This course is theoretically and NOT computationally oriented, although there will be some computer problems.

Grading: There will be a total of six homeworks, each of which will be handed out on average every two weeks. Homeworks will count 10% of the grade. The remaining 90% will be based on a take-home final exam. There might be a possibility that I will let you choose between the take-home final exam or an econometric project proposal. I will let you know with plenty of time.