ECO 2400: ECONOMETRICS, C. Gourieroux

The aim of the first part of the econometric course is to describe the main estimation methods with their theoretical properties.

1.Introduction
statistical model, statistical problems, estimators, comparison of estimators

2.Unbiased estimation
unbiased estimator, efficient estimator, Cramer-Rao efficiency bound, best unbiased estimator, best linear unbiased estimator (linear model, OLS, GLS), Monte-Carlo integration.

3 Maximum likelihood method
the principle, finite sample properties, examples, numerical algorithm for likelihood optimisation, asymptotic properties

4 Generalized Method of Moment
Moment restrictions, instrumental variables, examples (error in variable, rational expectation, simultaneous equations, intertemporal behaviour), moment estimator, optimal moments.

The course is systematically illustrated by econometric models, including: linear regression, nonlinear regression, logit, probit model, duration model, Poisson regression, autoregressive process, ARCH process, seemingly unrelated regression, simultaneous equation model, disequilibrium model, Tobit model, CAPM, survey sampling...

References: Gourieroux, C. and A. Monfort: Statistics and Econometric Models, Cambridge University Press