This course is presently co-taught by Professors John Chao and Ingmar Prucha. The course is offered in the spring semester. Topics typically covered by the course include:

- **Classical Nonlinear Models** (consistency and asymptotic normality of extremum estimators (or M-estimators); nonlinear least squares; maximum likelihood estimation (with applications to discrete response models, censored regression models, count data models, etc.)); generalized method of moments estimation (with applications to 2SLS, 3SLS, etc.); numerical optimization methods
- **Panel Data Models** (Fixed and random effects panel data models, within estimator; between estimator; GLS estimator; dynamic panel data models, IV estimator)
- **Univariate Dynamic Models**
  - Autoregressive regression models (autoregressive regression model with i.i.d. errors and with autocorrelated errors, autoregressive distributed lag models, error correction model)
  - Stationary time series (stationary stochastic processes; ARMA processes; autocorrelation function; prediction of ARMA processes; estimation of ARMA processes)
  - Nonstationary time series (unit root processes; trend stationary processes; tests for unit roots)
- **Multivariate Dynamic Models**
  - Dynamic Linear Simultaneous Equation Models (Simultaneous equation bias; identification; OLS of structural and reduced form parameters; limited information and full information instrumental variable estimation (2SLS, k-class estimator, LIVE, 3SLS, FIVE); FIML estimator and structure of simultaneous equation; estimation of stationary vector autoregressive (VAR) processes)
- **Nonparametric/Semiparametric Methods**
- **Econometric software** planned to be used in this course is Stata

Prerequisite: Econ 623 or permission by the Department.