This course will present the methodology of econometric estimation of economic efficiency. We will examine the stochastic frontier model as an econometric extension of the classical microeconomic theory of production and cost at the individual producer level. Basic models for production, cost and ‘distance’ will be examined. We will examine major extensions of the models to provide scope for cross firm heterogeneity (such as heteroscedasticity) as well as unobserved heterogeneity captured by the stochastic specification of the model. The second day of the course will turn to more advanced applications, such as Bayesian and classical methods of estimation and, especially, panel data models. In addition to the examination of theoretical and econometric methods, we will study several applications from the recent literature.

The course will include lectures that develop the relevant theory and extensive practical, laboratory applications. Emphasis in the laboratory sessions will be on estimation of stochastic frontier models and using them to compute measures of economic efficiency. Course participants will apply the techniques on their own computers using the LIMDEP computer program and several ‘real’ data sets that have been used in applications already in the literature.

Prior knowledge is assumed to include a course in microeconomics, calculus at the level assumed in the first year of a Ph.D. program in economics and a course in econometrics at the beginning Ph.D. level out of a textbook such as Greene, W., *Econometric Analysis*, 6th edition. Familiarity with LIMDEP will be helpful, but is not necessary.

Students in this course will obtain background in both the theory and methods of estimation for stochastic frontier modeling. This course will provide a gateway to the professional literature as well as practical application of the methods at the level of the contemporary research in the field. LIMDEP is the leading computer program for this type of estimation, so students will have also studied the application of the techniques using the modeling tools familiar to researchers in the area.