Instructor: Anna Alberini
Rm. 115, Economics Bldg.
492-6653

Class meeting times:
Tuesdays and Thursdays
2:00 – 3:15
Chem 133

Office hours:
Tuesday 9:00 - 12:00
or by appointment

Textbook:
Econometric Analysis
W. H. Greene (2nd edition)

Course requirements:

- one midterm and one final, worth each 33 percent of the final grade.
- an empirical project on a topic/dataset of your choice. A two-page description of your proposed investigation, data collection plan, and an outline of the specific models you plan to run is due on October, 1. The final report (five pages) is due on the last day of classes (December, 5). The project is also worth 33 percent of your final grade.

Course outline:

(1) review of some of the basic probability and statistics concepts: univariate random variables (both continuous and discrete); densities and discrete distribution functions; expectation and variance of a random variable; bivariate and multivariate random variables; joint, marginal and conditional densities with special reference to the multivariate normal case; expectation and variances of functions of random vectors; sampling techniques; maximum likelihood estimation and tests of hypotheses. [Chapters 3 and 4]

Class quiz

(2) the classical linear regression model (one regressor): notation, assumptions, least squares estimates, properties and distribution of the estimates, tests of hypotheses about
the coefficients, judging the fit of the regression, properties of the residuals and forecasting [Chapter 5-6]

**Class quiz**

(3) the classical linear regression model (multiple regression): matrix notation, testing linear restrictions on the parameters using the F test, testing general restrictions on the parameters (using the classical test statistics) [Chapter 7]

**Midterm**

(4) relaxing the assumptions of the classical linear regression model: what to do when the errors are non-normal, when they are heteroskedastic [Chapter 14], when they are serially correlated [Chapter 15]; the effects of including redundant regressors or omitting relevant regressors, endogenous regressors, collinear regressors.

**Class quiz**

(5) specification issues and special topics: transforming independent variables and the dependent variable (Box-Cox transformation), using dummy variables, missing observations, grouped observations, choice-based sampling, using weights [Chapter 8, lecture notes].

(6) systems of equations: seemingly unrelated equations (properties and estimation techniques) [Chapter 17]

(7) systems of equations: simultaneous equations (identification conditions and estimation techniques) [Chapter 20]

**Class quiz**

(8) discrete dependent variable models: probit/logit and Poisson equations [Chapter 21, lecture notes]

**Final**

**Statistical software:** I will teach you how to use SAS and GAUSS. Both are accessible from the economics graduate computing lab.