

Econ 715

Econometrics Methods

Instructor: Xiaoxia Shi

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August 31, 2012

Lectures: Wednesday, 05:30 PM - 08:00 PM SS6232

Office hours: Tuesday, 5-6pm, SS6428

Course Outline

This course is designed for second year students who have taken the first year required econometric courses. The aim of the course is to provide a theoretical background that is useful for research in econometric methods and for applied research using those methods. A tentative outline is

1. Review of the linear models
2. Some asymptotic theory not covered in the first year courses
3. Consistency of extremum estimators- least squares, maximum likelihood, generalized method of moments

4. Asymptotic normality of extremum estimators
5. Testing in nonlinear models (Wald, likelihood ratio, and Lagrange multiplier tests) and specification tests
6. Partially identified models, their estimation and inference
7. Bootstrap and Subsampling methods
8. Empirical Likelihood Methods.
9. If time permits, I would also like to discuss the issue of weak instruments (or more generally, weak identification)

The classes will approximately follow the outline above, but there will be some changes of contents and order inevitably.

Reading:

Journal articles and unpublished research papers. These (or their links) will be posted on my website at least two days from the class in which they are discussed.

Computer programs:

Problem sets will occasionally involve simulation or application of the methods we discuss in class. You may choose a computer program that you feel comfortable with. The commonly used programs are Matlab, R, Gauss or even Fortran and C. You are expected to study at least one of those programs/languages by yourself or with the help of the computer lab staff I will be able to provide no guidance on R or any of the primitive languages and only limited guidance on Matlab and Gauss.

Requirements:

1. Because this is supposed to be an advanced graduate level class, there will be no classroom attendance requirement. There is no point of coming to class if you

study more efficiently by yourself. However, you are required to master the theories and models discussed in class.

2. Again because this is an advanced level class, problem sets are optional and they are only counted positively to your final grade.

3. 20 minutes oral exam. (50%) During the oral exam, I will ask questions about the material covered in the first half of the course and you will answer them verbally with the aid of the blackboard (or white board).

4. Final project. (50%) 2 to 3 problems will be suggested. You may choose other problems that are relevant to the methods discussed in class.

Key Dates:

1. **Oral Midterms** are scheduled on Friday: **Nov. 2, 9:00-12:30 and 3:30-6.**

A time sheet, on which you select your favorite slot, will be distributed in class on Oct. 31.

2. If you prefer not to use the suggested problems for your final project, you should start discussing with me your selected topic no later than Thanksgiving. The due date of the **final project is 11:00am, Dec. 24** (so that I won't be guilty for ruining your Christmas eve!)

GRIEVANCE PROCEDURE

The Department of Economics has developed a grievance procedure through which you may register comments or complaints about a course, an instructor, or a teaching assistant. The Department continues to provide a course evaluation each semester in every class. If you wish to make anonymous complaints to an instructor

or teaching assistant, the appropriate vehicle is the course evaluation. If you have a disagreement with an instructor or a teaching assistant, we strongly encourage you to try to resolve the dispute with him or her directly. The grievance procedure is designed for situations where neither of these channels is appropriate. If you wish to file a grievance, you should go to room 7238 Social Science and request a Course Comment Sheet. When completing the comment sheet, you will need to provide a detailed statement that describes what aspects of the course you find unsatisfactory. You will need to sign the sheet and provide your student identification number, your address, and a phone where you can be reached. The Department plans to investigate comments fully and will respond in writing to complaints. Your name, address, phone number, and student ID number will not be revealed to the instructor or teaching assistant involved and will be treated as confidential. The Department needs this information, because it may become necessary for a commenting student to have a meeting with the department chair or a nominee to gather additional information. A name and address are necessary for providing a written response.