



Course MECO 6320, Section 001, Econometrics
Professor Yexiao Xu
Term Fall 2010
Meetings Tuesday, 8:30-11:15PM

Professor's Contact Information

Office Phone	(972)883-6703
Office Location	SM 3.812 (School of Management Building)
Email Address	yexiaoxu@utdallas.edu
Office Hours	Tuesday 5:30-6:30PM
Other Information	Lecture notes and homework assignment will be distributed in class. Data can be downloaded from my webpage: http://www.utdallas.edu/~yexiaoxu Grades will be posted on WebCT, but I do not read WebCT mail!

General Course Information

Pre-requisites	Meco 6315 and Stat 6344 (recommended)
Course Description	Econometrics provides horsepower in economics to deepening our understanding of economic theory and to facilitate policy implementation. Such quantitative analysis has become increasingly important in almost all areas in business schools. In order for the course to be self-contained, some of the materials will overlap with an introductory course you might have taken. However, since this is an intermediate course, we emphasize econometrics theory and focus on two aspects. First, there will be more rigorous treatment on the classical topics such as the Gauss-Markov theorem and relaxation of basic assumptions underlying the theorem. We will also discuss statistical inference in details. The importance of this focus lies in the fact that no econometric applications are exactly the same. In your future creative research, you will test your own theory in which no existing tests are available most time. You will also be able to read academic journals and adopt new econometric methodologies to your field of research and have an edge over others. Second, different from an introductory class where all formulas are in summation notation, we use matrix manipulation in order to deal with more complicated procedures. You have also been taught using canned software to run different procedures. In this class, however, you need to learn Matlab in order to program an econometric procedure. The course should not only provide a solid understanding of these techniques and theory, but also enable you to expand your econometrics skill through practice. Therefore, your devotion is crucial towards a successful completion of this course. Six problems sets will be assigned through the semester to enhance your understanding of theory and to provide "hands-on" experience.
Learning Outcomes	<ol style="list-style-type: none">1. Validate assumptions underlying the classical linear regression model and be able to construct asymptotic results for different estimators2. Implement different estimation techniques including maximum likelihood estimation, and the generalized method of moments estimation. Develop statistical inference for different estimators and for different models.
Required Texts & Materials	<i>ECONOMETRIC ANALYSIS</i> , Sixth Edition, William H. Greene
Suggested Texts, Readings, & Materials	Johnston, J. and John DiNardo, <i>Econometric Methods</i> Judge and Hill, <i>The Theory and Practice of Econometrics</i>

Assignments & Academic Calendar

<p>Aug. 24 Lecture 1</p>	<p>Course Organization and Mathematical Background Review Linear algebra, matrix theory, and derivatives Appendix: A</p>
<p>Aug. 31 Lecture 2</p>	<p>Statistical Background Review Asymptotic theory, parameter estimator, statistical distribution, and useful theorem Introduction to Matlab Appendix: B, C, and D</p>
<p>Sep. 07 Lecture 3</p>	<p>Classical Linear Regression Model Univariate regression, Multivariate regression, Model Assumptions, Different estimators, and Least square estimator Chapter: 2, 3.1-3.2, and 3.5 Homework #1 due in class</p>
<p>Sep. 14 Lecture 4</p>	<p>Statistical Inference and Properties of OLS Estimator Properties of Least square estimator, asymptotic normality, and statistical inference Chapter: 4.1-4.4, 4.6-4.7, and 4.9</p>
<p>Sep. 18 Lecture 5 (Saturday)</p>	<p>Relaxing Assumptions in the CLRM—Misspecifications Partitioned regression model restrictions, Consequence of misspecifications, and multicollinearity Chapter: 3.3-3.4, 4.8, 5.3.2, and 7.2 Homework #2 due on Sept 21</p>
<p>Sep. 28 Lecture 6</p>	<p>Relaxing Assumptions in the CLRM—IV Estimator Stochastic regressor, Instrumental variables, Hausman test, and Error in variables Chapter: 4.5, and 12.1-12.6</p>
<p>Oct. 05 Lecture 7</p>	<p>Relaxing Assumptions in the CLRM—GLS Estimator Non-spherical error, heteroskedasticity, autocorrelation, and generalized least square Chapter: 8.2-8.8, 19.1, 19.3, 19.5, and 19.7-19.9 Homework #3 due in class</p>
<p>Oct. 12</p>	<p>Midterm exam</p>
<p>Oct. 19 Lecture 8</p>	<p>Maximum Likelihood Estimator and Statistical Inferences Maximum likelihood estimator and properties, two-step MLE, quasi-maximum likelihood estimator, LR test, LM test, and W test Chapter: 16.1-16.4, 16.6-16.7, and 16.9.1-16.9.2</p>
<p>Oct. 26 Lecture 9</p>	<p>Nonlinear Models and Statistical Inference Nonlinear regression, two-step NLLS, structural break and stability, Testing linear and non-linear restrictions, Hausman test, nonnested hypothesis testing, model selection Chapter: 11.2-11.4, 11.6, 6.3-6.4, 5.5, and 7.3-7.5 Homework #4 due in class</p>
<p>Nov. 02 Lecture 10</p>	<p>Generalized Method of Moments Method of moments, generalized method of moments, properties of GMM, testing hypotheses in GMM, applications Chapter: 15.1-15.5, and 15.6.1-15.6.2</p>
<p>Nov. 09 Lecture 11</p>	<p>Multiple Regressions and Identifications Multiple regression models, SUR estimation, and identification Chapter 10.2, 10.4, and 13.1-13.3 Homework #5 due in class</p>
<p>Nov. 16 Lecture 12</p>	<p>Simultaneous Equations 2SLS, 3SLS, FIML Chapter 13.4-13.6, and 15.6.4</p>

Nov. 23 Lecture 13	Panel Data Pooled regression, fixed and random effects, random coefficients, dynamic panel, Chapter: 9.1-9.5, 9.8.5, and 9.9 Homework #6 due in class
Nov. 30	Final exam

Course Policies

Grading (credit) Criteria	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Problem Sets</td> <td style="text-align: right;">30%</td> </tr> <tr> <td>Midterm Examination</td> <td style="text-align: right;">30%</td> </tr> <tr> <td>Final Examination</td> <td style="text-align: right;">40%</td> </tr> </table>	Problem Sets	30%	Midterm Examination	30%	Final Examination	40%
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Midterm Examination	30%						
Final Examination	40%						
Homework	There will be six problem sets distributed throughout the semester. All homework assignments should be submitted prior to class on the due date. You need to show your work in order to get the full credit. No late homework will be accepted. In the event that you are unable to attend a particular class, you may drop your homework in my office. Group discussion of homework problems is allowed but each student must prepare his/her own solution to each problem set. A copy of others' solution is considered as a cheating behavior.						
Exams	There will be one in-class midterm and a final exam. In order to be fair to everyone, exams must be taken on the specified dates. For those who can not take the midterm on the date of exam due to business travel, you should take it before leaving the town. No additional credit or make up final will be granted. The midterm and final exams will consist of conceptual and problem solving questions. All exams will be <i>closed book</i> and <i>closed notes</i> . Do not bring in any paper. I will provide you with scratch paper. No cell phone, PDA, financial or graphing calculator, and other electronic devices, except a SIMPLE (non-programmable) scientific calculator, are allowed. Your grades will be posted on the SIS.						
Classroom Citizenship	Strongly encourage class discussion						
Student Conduct and Discipline	<p>The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, <i>A to Z Guide</i>, which is provided to all registered students each academic year.</p> <p>The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the <i>Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3</i>, and in Title V, Rules on Student Services and Activities of the university's <i>Handbook of Operating Procedures</i>. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).</p> <p>A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.</p>						
Academic Integrity	<p>The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.</p> <p>Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to</p>						

	<p>applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.</p> <p>Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.</p>
Email Use	<p>The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.</p>
Withdrawal from Class	<p>The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.</p>
Student Grievance Procedures	<p>Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's <i>Handbook of Operating Procedures</i>.</p> <p>In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.</p> <p>Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.</p>
Incomplete Grades	<p>As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.</p>
Disability Services	<p>The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.</p> <p>The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY)</p> <p>Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.</p> <p>It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.</p>
Religious Holy Days	<p>The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.</p>

	<p>The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.</p> <p>If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.</p>
<p>Off-Campus Instruction and Course Activities</p>	<p>Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean.</p>

These descriptions and timelines are subject to change at the discretion of the Professor.

**University of Texas at Dallas
School of Management**

**MEco 6320
Advanced Econometrics**

**Professor Yexiao Xu
Fall 2010**

About Yourself

In order for me to better organize the course, and to adapt the materials to your background, would you please tell me more about yourself?

Your Name _____

Your Phone Number _____

Your Email Address _____

Your Area _____

Your Background

Econometrics Class _____

Statistics and Math Courses _____

Economics Class _____

Other related Courses _____

Your Comments: