Econometrics I
ECO 5314 001 CRN: 39915
Tuesday, Thursday 8:00 am -9:20 am
Holden Hall 0154
Course Syllabus-Spring 2014

Professor: Dr. Andres J. Vargas
Office: HH 252
Office Hours: Tues, Thurs 9:30 am - 10:30 am.
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Class Web Page: Students should check Blackboard for course materials and grades.

Prerequisites: AAEC 5311 or ISQS 5349 or consent of instructor

Required Textbook: Econometric Analysis (7th ed.) by William H. Greene

Software: Small Stata 12, or higher. You can get the student license for six months ($32.00) at:


Course Description
Econometrics I is an introduction to econometrics for graduate students. The aim of the course is to introduce the regression model and various extensions, as tools for examining, empirically, the nature and strength of economic relationships, testing economic theories, and evaluating public policies. We begin by examining bivariate distributions, conditional expectations, best linear predictors and the simple linear regression model. After reviewing the properties of the simple model and estimates we extend the results to the multivariate regression model. We will focus on properties of OLS under various assumptions and consider methods of conducting inference and hypothesis testing. The course will then be devoted to extensions of the classical regression model and methods for assessing the validity of assumptions underlying the model. In this section we will deal with nonlinearity, endogeneity, and heteroskedasticity. The remainder of the course will introduce additional estimation techniques that are useful in the analysis of cross sectional and panel data. The coursework will be applied in nature, but students will need to understand the theoretical underpinnings so that they can estimate the appropriate model in a given situation, test certain hypotheses, and know the consequences and, ideally, the remedies.
needed, when certain conditions do not hold. A decent knowledge of matrix algebra will be essential, although certain matrix results will be reviewed in class.

**Learning Outcomes**
Students successfully completing the course should be able to:

- Derive and explain the properties of the ordinary least squares (OLS) estimator in a multivariate regression framework;
- State the assumptions under which the OLS estimator is unbiased, consistent, and asymptotically normally distributed;
- Explain what happens to the OLS estimator if such assumptions are violated, test for such violations, and propose alternative estimators;
- Estimate and interpret regression models;
- Conduct hypothesis testing in the linear regression model as well as construct and interpret confidence intervals;
- Understand and implement alternative estimation methods including, but not limited to, nonlinear least squares, generalized least squares, instrumental variables, maximum likelihood estimation, simultaneous equations, and panel data models.
- Program in STATA to analyze economic data.

**Assessment:**
Assessment will be based on your performance on problem sets, three midterm examinations, and a final examination. The contributions of each of these components to the course grade are indicated below.

<table>
<thead>
<tr>
<th>Outcome Assessments</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>20%</td>
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<tr>
<td>Midterm 1:</td>
<td>20%</td>
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<tr>
<td>February 18th</td>
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<td>Midterm 2:</td>
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<td>March 13th</td>
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<td>Midterm 3:</td>
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<td>April 17th</td>
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<td>Final Exam:</td>
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<td>May 12th</td>
<td>7:30 a.m. to 10:00 a.m.</td>
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<td><strong>100%</strong></td>
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**Problem Sets:** Problem sets will be posted to Blackboard and, at the top of each assignment; a due date will be listed. Assignments are due at the beginning of class on each respective due date and late assignments will not be accepted. Problem sets will contain a mixture of applied and theoretical problems. The applied problems will typically involve using data and you will need to submit the STATA code you used to solve the problem as well as the output that is generated from running the code. I encourage you to work in pairs on problem sets but you are required to submit your own work representing your ideas about how the problem was solved. You must adequately show how you obtained all of your solutions, not just submit a paper with answers. If you work in pairs, list the name of the other student you collaborated with on your assignment.

There will be no opportunities for extra credit. I would encourage students to make use of the T.A. and my office hours during the semester and not wait until the day before the assignment or exam. If you are having difficulties with concepts early on, then it is likely that your difficulties
will snowball and that there will be insufficient time to deal with your problems close to the exams or problem sets due dates. So please make use of the office hours to sort out difficulties as they arise.

**Grading:** All the grades will be posted on Blackboard. If you think that a grading error was made, you may submit a typed appeal within a week (7 days) of when the grade was returned to you. Your written appeal should be based on course materials and should stress the validity of your original response. Please staple your typed justification to your original exam/problem set. In grading (and re-grading) we will strive for fairness and consistency. If you submit a request for me to review your grade, I will review the complete work and your grade may go up or down.

**Make-up examinations:** It is your responsibility to arrive at the exam on time. Exams will be held in our regular classroom. Students who arrive late will not be given additional time, and anyone arriving after other students have finished will not be permitted to take the exam.

Failing to take a scheduled examination will result in a score of 0 unless replaced by a make-up exam in a timely fashion. ‘Make-up’ examinations are given at the discretion of the instructor, and will only be given in cases where there is a documented excuse beyond your reasonable control:

- Illness – you must have a physician note indicating that you were not in a physical condition to take the exam at the scheduled time. A note from a family member is insufficient.
- Death or grave illness in your immediate family. You should go to the Center for Campus Life and provide verification of a family emergency.
- Significant scheduling conflicts such as job interviews or official TTU business. In this case, you must inform the instructor before the scheduled exam you may miss so that an alternate exam time can be scheduled.

No exam will be made-up after it has been graded and returned to the class.

**Civility in the Classroom:** Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor; students are prohibited from engaging in any other form of distraction, such as reading the newspaper or texting. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class. **Wireless phones** must be turned off during class time.

*Please arrive on time to class and stay for the entire class period.* Late arrivals and early departures are disruptive. If despite your best effort you arrive late, please quietly take a seat at the back of the classroom. Similarly, in the rare event that you must leave class early talk to me before the class starts to let me know, then sit close to the rear door and leave as unobtrusively as possible. If you can’t be there on time or must always leave early because of a class or work conflict, either seek specific permission from me or do not take the class. During exams, ask permission before leaving to use the restroom. Try to use the restroom before coming to class.
Attendance Policy: Regular and punctual attendance at all scheduled classes is expected. Attendance will be monitored daily. In order for an absence to be excused, you must bring written documentation to class or my office hours within one week of your absence (see above for the accepted documented excuses beyond your reasonable control).

An excessive number of unexcused absences (over 7 classes) will result in (i) informing the dean of students to take proper action, (ii) lowering your final grade from A to B, from B to C, from C to D, or from D to F.

Academic Integrity and Dishonesty: All students are expected to follow the policies of Texas Tech University as outlined in the undergraduate catalog. Cheating and plagiarism will not be tolerated. Terms associated with academic misconduct are explained in the current Code of Student Conduct.

Students that knowingly take any action that violates the Texas Tech University Code of Student Conduct are subject to disciplinary action including, but not limited to, the possibility of failure in the course.

Students with Disabilities: I would like to hear from anyone who has a disability that may require some modification of the seating, testing, or other class requirements so that appropriate arrangements may be made. Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or 806-742-405.

Religious Holy Days: Religious holy days sometimes conflict with class and examination schedules. The University policy is that students that miss course work due to the observance of a religious holy day must be given the opportunity to complete the work missed within a reasonable time after the absence. Notification must be made in writing and delivered in person to the instructor no later than the 15th class day of the semester.

Student Counseling Center: I realize that all of you have a lot going on in your lives outside of your classes. If these responsibilities or circumstances lead to mental or emotional difficulties, the Student Counseling Center provides short-term, confidential counseling and consultation to students who are experiencing emotional and psychological problems that are interfering with their ability to be successful in school and with their individual personal development. All students currently registered for classes are eligible for services at the Student Counseling Center. This clinic is a valuable resource and does not require an appointment. You can find the Student Counseling Center in room 201 of the Student Wellness Center or contact the staff at 806-724-3674.

Student Resolution Center: I am committed to providing students with a respectful environment that is conducive to learning. If you feel such conditions are not being met, please do not hesitate to contact me. If you feel uncomfortable approaching me with issues, The Student
Resolution Center at the Texas Tech University provides informal, neutral, and confidential dispute resolution services. They assist people with interpersonal misunderstandings or disputes as well as those with concerns about academic or administrative issues. You may visit the Student Resolution Center in 232E Student Union Building or call 742-SAFE or 743-SAFE.