ECON 5336-001: Economic Data Analysis
Spring 2016
Course Syllabus

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Office Hours: Wednesdays 4-6 PM or by appointment (we can discuss this)

Section Information: ECON 5336-001

Time and Place of Class Meetings: Thursdays 7pm to 950 pm, COBA 349

Description of Course Content:

This course develops an understanding of statistical and econometric techniques so participants can evaluate claims made by others, come to their own conclusions, and make better judgments about future events. There is a dual focus on underlying theory and on the application of the techniques on data sets. It provides the opportunity to learn how to use the STATA statistical package to apply these techniques to real data for the formulation of solutions to practical managerial decision making. Topics include descriptive statistics, statistical inference, simple and multiple regression analysis, heteroskedasticity, specification, data issues, different functional forms and hopefully, endogeneity and serial correlation. Material covered has many practical applications in various fields.

Student Learning Objectives/Outcomes:

- Students will know the key assumptions, strengths and weaknesses of the Classical Linear Model.
- Students will understand how to handle non-linear relationships in the Classical Linear model
- Students will utilize regression analysis to test hypotheses about economic behavior, with examples draw from economics and other social sciences.
- Students will know who to correctly intercept coefficients for binary variables.
- Use other statistical methods to test the applicability of the regression results.
- Gain a working knowledge of Stata
- Utilize techniques that allow for statistical analysis of data that violate the basic classical linear regression assumptions.

Class Description:

The course develops an understanding of basic statistical and econometric techniques. Participants exploit real data and computational power to uncover patterns/trends and examine relationships. There is a focus on conceptual frameworks and the application of techniques to data sets in various fields. Participants learn how to use the STATA statistical package to apply the tools to real data. Prerequisite: Graduate standing.

Required Textbooks and Other Course Materials:

Textbook: **Introductory Econometrics: A Modern Approach**, 5th edition, Wooldridge, J.

Software: It is also required that you buy or have access to STATA. However, I recommend you to use the resources here at UTA vs. spending resources. But, if you need to purchase STATA, visit the following website. http://www.stata.com/order/new/edu/gradplans/student-pricing/. Small STATA is fine for this class.

Data: I will provide data that accompanies the textbook as well as STATA programs used in the text. Other data and programs will be placed there during the semester.

Recommended Textbooks and Other Course Materials:

Textbook: Hamilton, L. C. **Statistics with Stata,** Brooks/Cole, 2004 (H), version 12. STATA does provide good references as well

Calculator: The TI-503 which should be available at the book store.

http://education.ti.com/en/us/products/calculators/basic#ti-503-sv

Blackboard:

I will use Blackboard, an electronic learning software platform, for the distribution of course information. Go to

http://elearn.uta.edu/

to log in. Be sure to check our Blackboard site on a regular basis for announcements, exam reviews, and other material related to class. There are detailed instructions on the use of Backboard that can be accessed at http://www.uta.edu/blackboard/students/

Expectations for Classroom Behavior:

Class participation, questions, discussion are strongly encouraged. Please be respectful of each other, the instructor, and any guest presenters while in class. We are all here to learn! Any disrespectful or disruptive behavior may result in your being dismissed from class and/or an academic penalty.

All cell phones and pagers are to be silenced during class and not to be used. In addition, if you do show up late or leave before class is over, please sit in the back of the class and be as cordial to others as possible.

Failure to adhere to these classroom rules may result in your being dismissed from class and/or an academic penalty.

Prerequisites:

Graduate Standing.

Grading:

Your final grade will be determined by homework, a midterm exam, and the final exam. They will be weighted as follows:

Homework (28%)
- Four problems sets worth 7% each.
- Late assignments will not be graded and will be counted as a zero.

- I will post an answer key videos explaining the answer key on Blackboard

Midterm (36%)
- Examination on the 1st half of the course. Open ended questions. Closed book, closed notes, only basic calculator allowed.

Final (36%)
- Cumulative with heavy emphasis on second half of course
- Open ended questions. Closed book, closed notes, only basic calculator allowed.

Your letter grade will be determined by the percentage of total points earned as follows:

A 90% or above
B 80 – 89.99%
C 70 – 79.99%
D 60 – 69.99%
F Below 60%

Curve: You should not depend on a curve, as there is a reasonable probability that there will not be one. If there is a curve, it would be small at best.

Grades: I want all of you to get the highest grade you want, but I believe you reap what you sow. So if you want a certain grade, please visit me during the semester so I can help you get that grade. The week before the final exam may be too late to earn the grade that you want.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see "Student Support Services," below.

Attendance:

At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I have decided that attendance at class meetings is not required but strongly encouraged.   If you must miss class, you are responsible for obtaining any class notes and homework assignments distributed in class.

Descriptions of major assignments and examinations:

There will be 4 problems sets and 2 exams. The problem sets will be a combination of questions from the book and my own devised questions with a combination of theory and STATA work. There are 2 parts for each problem set. The first part is graded, will be 2 to 4 questions, and will be material you will need to know for the exams. I will randomly choose one question to grade for each problem set. The second part of the problem set are questions on material that you will need to know for the exam, but are not graded on the problem set. Therefore, you will be responsible for all of the questions for the exams. You may work on problem sets together, but all answers must be written independently. Think of the problems sets as a study guide for the exams. Understand, they will not be quick, short answer problem sets, so please start these with plenty of time.   Problem sets must be done digitally.

The exams will test you on theory and your ability to correctly interpret STATA results. The tests are closed book, closed notes, where the only thing you need to provide are pencils/erasers. You may have something for drinking, but otherwise, you must have a clear desk area, including headwear and mobile devices. There will be other restrictions as well.

Final note on exams: Students may not use a programmable calculator for examinations. A simple four function calculator is sufficient for all problems. I recommend the TI-503 which should be available at the book store.

Make-up Exams and Exam policy: Exam dates will not be changed unless the university has been closed; I will adjust the material if we get behind. Make up exams will not be given. For an excused absence, I will compute you grade as if the missed exam never existed. I may provide a make up for the final exam, and even then, only under extenuating circumstances that will require documentation and possible follow up by me or the department.

Expectations for Out-of-Class Study:

Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 8 to 10 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, research paper, etc.

Assignments & Academic Calendar:

Readings from the textbook are listed for when they are supposed to have been read (except for the first class). Exam and problem set dates are also listed below. Please note that the schedule skips around the textbook some. Certain topics go together in a different order than presented in the book. If we get behind, the dates for exams and problem sets will not change unless the university has been closed. I will change the material covered in the problem sets or exams to accommodate where we are.

I will try to have reviews before the midterm and the final exam. New material will not be taught nor will I go into more specifics about the exam. This is only for questions about the material.

Jan 21   Chapter 1, Nature of Econometrics and Economic Data. Review of key math and statistical concepts from Appendices A, B, and C. Start Chapter 2, Simple Regression

Jan 28   Chapter 2. Introduction of Simple OLS as a tool to use sample expectations to true population model. Derive simple OLS estimators as FONC. Its basic properties and interpretation. Introduce Goodness of Fit, Nonlinear estimation, and key Simple OLS assumptions. Variance of estimators. (will only briefly touch on 2.6) Start Chapter 3 if possible. **Problem Set #1 available this week.**

Feb 4   Finish Chapter 2, the STATA introduction.

Feb 11   Chapter 3. Multiple OLS Analysis. Overview of mechanics and the partial effect (ceteris paribus) interpretation of coefficients. Generalize OLS assumptions. Introduce Omitted Variable Bias. OLS Estimator variance and it's properties. Touching on the concept of Efficiency with OLS. (You can read 3.6 on your own) **Problem Set #2 available**

Feb 18   Finish Chapter 3. Start Chapter 4. Statistical Inference of the OLS estimators. Introducing hypotheses testing of coefficients using t-stats and p-values. Confidence Intervals. Linear combination of coefficients. **Problem Set #1 due on Feb 20th at noon.**

Feb 25   Chapter 4. Introducing Joint Hypotheses testing.

Mar 3   Touching on Chapter 5: OLS Asymptotics. Consistency and Asymptotic Normality. The Lagrange Multiplier Statistic. Start Chapter 6 if possible.

Mar 5   Tentative Saturday Review for Midterm (1 PM in COB 349, but tentative) Problem Set #2 due at noon.

Mar 10   Midterm (Chapter 1, 2, 3, 4, and a small bit from 5)

Mar 17   Spring Break

Mar 24	Finish Chapter 6. Prediction. Non-linear and interaction forms. Unbiased estimation of log-linear models. **Problem Set #3 available this week**
Mar 31	Chapter 7: Introducing Qualitative Information. Binary variables as explanatory terms. Interactions involving dummy variables. Chow Statistic. Binary variable as dependent variable, the Linear Probability Model. Briefly touch 7.6 and 7.7.
April 7	Finish Chapter 7. Chapter 8, Heteroskedasticity. Robust Standard errors. Tests for Heteroskedasticity. Generalized Least Squares and Feasible Generalized Least Squares. The Linear Probability model revisited. (may skip) Prediction and prediction intervals with heteroscedasticity. (may skip)
April 14	Finish Chapter 8. **Problem Set #3 due on 4/16 at noon. Problem Set #4 available this week.**
April 21	Start Chapter 9, More Specification and Data issues. RESET test. Proxy variables, including lagged dependent variables as proxies. Measurement error. Missing Data and Nonrandom samples.
April 28	Finish Chapter 9. Start Time Series Data Analysis. If I get to this material at this date, then I will cover some select topics from Chapters 10, 11, and 12.
May 5	Time Series continued
May 8	**Tentative Final Exam Review (1 PM in COB 349, but tentative) Problem Set #4 due at noon.**
May 12	**Final Exam: 8:15 PM to 10:45 PM (Ch. 6, 7, 8, 9, and time series if possible)**

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Communication: Check Blackboard frequently. I will communicate exclusively via the email feature in Blackboard, when possible.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. [Some instructors opt to cut and paste the relevant policy here. No faculty members, department, school or college may create his/her/its own grade grievance policy. For graduate courses, see

http://catalog.uta.edu/academicregulations/grades/#graduatetext.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with

disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364.
Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit* www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In

addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: *Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located in the back of this room. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.*

Please see this link for more information: http://www.uta.edu/police/Evacuation Procedures.pdf

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php

I reserve the right to alter this syllabus as needed.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.