

Syllabus

BUAN/MECO 6312 - Applied Econometrics and Time Series Analysis

Spring 2024

Instructor: Quanquan Liu

Lecture Time and Location:

Session 002: Wednesdays 10:00am-12:45pm at JSOM 12.210

Session s02: Wednesdays 4:00pm-6:45pm at JSOM 1.517

Session 003: Thursdays 4:00pm-6:45pm at JSOM 12.214

Office: JSOM 13.401

Office Hours: Thursdays 10:00am-12:00pm, or by appointment

Email: qxl220001@utdallas.edu

Teaching Assistant I (for sessions 002 and 003):

Office:

Office Hours:

Email:

Teaching Assistant II (for session s02):

Office:

Office Hours:

Email:

Course Modality

This class is intended to follow in class (face-to-face) modality.

According to the school policy, online access is not provided for 100% in-person classes, unless some unpredictable circumstances happen, such as extreme weather which leads to the cancellation of in-person classes.

The information contained in the following link lists the University's resources and policies for students and instructors of record.

Please see [UT Dallas Syllabus Policies and Procedures - The University of Texas at Dallas](#)

Course Description

The objective of this course is to provide a thorough introduction to the theory and application of contemporary econometric tools. Specifically, it teaches students to empirically estimate and interpret commonly used econometric techniques to analyze cross-sectional, time series and panel data sets. Emphasis will be placed on the following:

- Understanding theory through applications and problem solving rather than complex proofs
- Working as a learning community to improve statistical and econometric skills necessary in the study of business and economics

Course Objectives

Throughout this course you will hone your understanding of linear and non-linear regression as well as other forms of economic regression with different variables. After the successful completion of BUAN/MECO 6312, a typical student should be able to:

- Derive statistical parameters to estimate causal relationships
- Estimate statistical parameters of a regression analysis using the Stata software package
- Interpret results of regression analysis with different specifications
- Conduct empirical economic research using the knowledge and techniques of econometric models you have learned in this class

Prerequisites

Knowledge of basic calculus, linear algebra, and probability and statistics are required; some familiarity with computer-based data analysis is recommended (OPRE 6301 or SYSM 6303 or FIN 6306).

Textbook and Materials

TEXTBOOK: “Introductory Econometrics: A Modern Approach” (5th Edition or newer, the chapters below follow the 7th Edition), by Jeffrey M. Wooldridge. 2016 Cengage Learning, Inc. ISBN: 978-1-337-55886-0.

Optional:

“Principles of Econometrics”, by R. Carter Hill, William E. Griffiths and Guay C. Lim.

“Mostly Harmless Econometrics: An Empiricist's Companion”, by Joshua D. Angrist and Jörn-Steffen Pischke.

Required Software:

We will use Stata.

Stata is NOT available at the computer lab, but it is available on the server. I will arrange remote access to the server for all of you, so that you will not have to purchase a license.

eLearning:

Lecture notes, assignment solutions, codes and any additional material will be posted on the eLearning website of this course. eLearning can be accessed via

<https://ets.utdallas.edu/elearning> using your NetID and password. If you are having difficulties accessing eLearning, please contact the eLearning Helpdesk via

<https://ets.utdallas.edu/elearning/helpdesk>.

Grading

Your grade in this course will be determined by the following assignments:

- Attendance requirements (5%)
- Assignments (2 assignments, 5% each)
- Midterm Exam (30%) – Date: **Mar 7**, 120 mins
- Final Exam (35%) – Date: **Apr 25**, 150 mins
 - The final exam is cumulative in that the material builds on each other.
- Group Project (20%, Proposal + Presentation + Final Paper)

1. **Class participation:** To get the most from this class, it is important that you come to class ready to join the discussion on the day's topic. When evaluating class participation, I keep the criteria as follows:

- Attending class regularly.
- Displaying positive behaviors such as active listening to the instructor and peers, asking insightful questions, responding to questions, synthesizing others' ideas, bringing appropriate real-life experiences, and disagreeing constructively.

Remember, if you miss a class meeting you are expected to obtain notes and other material on your own.

2. **Attendance and After-class exercises:** Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. Occasionally, there will be attendance documentations. After-class exercises on class content might be available after each lecture. Those exercises ensure that you are prepared for class and are on track to pass exams. Detailed class attendance policies follow.

- 1) Attendance checks will be carried out at randomly selected meetings without any advance notice. A student is expected to be present in the classroom throughout the meeting. Therefore, missing the attendance check implies that the student is absent on that day's meeting, even if the student might be present for part of the class time.
 - a) If the student is *very* late for the class (e.g., arriving when the class is nearly finished), the instructor reserves the right to ask the student to leave and mark the student's attendance as absent for that class.
- 2) If a student has eligible excuses (e.g., medical emergency, conflicts of schedule, job interviews) to miss a class, he/she must inform the instructor **at least one day before the class is scheduled**, and offer **documentary** evidence.
- 3) If a student missed a class for eligible excuses but did **not** notify the instructor on time, he/she **may** receive partial credit at the instructor's discretion, when he/she

- explains his/her situations to the instructor after the class and the instructor is convinced about the explanations.
- 4) No make-up classes will be offered. If a student missed a class for any reason, he/she is responsible for catching up on the class materials by themselves or together with their classmates. The instructor is happy to give an *outline* of past classes during office hours (if time permits), but cannot redo lectures.
 - 5) **Cheating is strictly prohibited.** If it is discovered that a student signed for another student who is otherwise absent, the following disciplinary actions will be taken:
 - a) At the first offense, an official warning will be given; the lecture in which cheating is discovered will be marked absent, and 3 additional points will be deducted from both students' final grades.
 - b) At the second offense, the entire attendance scores (5% of total scores) for both students will be forfeited, and 5 additional points will be deducted from both students' final grades.
 - c) For repeated offences, the instructor reserves the right to refer the students to university academic integrity authorities.
3. **Assignments:** To help students better understand the course materials, master basic data analytics skills, and prepare for the exams, there are TWO homework assignments. Short answer questions included. Specific details for these assignments will be posted on eLearning.
- These are **individual** assignments. Students must turn in their own work. Each assignment has a specific time by which it must be completed. Early homework is accepted; Late submissions within 24 hours will receive 50% of the original points, late submissions within 48 hours will receive 25%, and so on.
 - Stata is recommended. Using other software (e.g., R, Python, Matlab) is also allowed, but replicable codes must be provided at the same time.
4. **Exams:** There are two exams (see Course Schedule for details). Exams will combine multiple-choice and essay format questions. Both exams are 100% paper based.
- The dates of the exams are **fixed**. Please plan ahead and make sure that you can attend as scheduled.
 - All exams are **closed book**. You may need a **calculator** and you are responsible for bringing this calculator to the exam. Calculators on phones, computers, or other electronic devices are not allowed. **Formula sheet** will be provided.
 - If you took the exam for a wrong session, you will get a zero.
 - No practice test

Very important rules governing exams follow: please read very carefully.

- 1) Both exams are conducted at the testing center. It is not possible to complete the exam at any other location or in any other form.
- 2) The testing center enforces its own rules independent from instructors. Based on my experiences, it is almost impossible to ask for exceptions.

- a) For a paper-based exam, the testing center will not monitor the time for you, so **you need to monitor the time by yourself**. If you spent 15 minutes longer than permitted, your score will be adjusted proportionally.
 - b) The testing center closes registrations a few days before the exam date. You must be registered to take the exam. **There is nothing I can do if you must miss the exam due to not registering.**
 - c) The testing center has strict rules regarding late arrivals and may refuse entry if you are late. **There is nothing I can do if you are refused entry by the testing center.**
- 3) Exams are mandatory and you are expected to make every effort to attend them. If you miss an exam, you must take the following three steps:
- a) Contact me **at least 24 hours before the exam**. If I do not hear from you in that time, you will receive a zero for the exam.
 - b) Provide documentation of exigency (see bullet point 4 for detail). I reserve the right to assign a grade of zero for the exam for reasons I deem less than exigent.
 - c) Student who misses the midterm could, at the instructor's discretion, be permitted to drop the midterm and have the final count as an additional 30% of the student's grade. Student who misses the final must take the make-up exam at a time of the instructor's choosing. If the student cannot make that time, he/she will receive a zero for the exam. The final exam is comprehensive.
- 4) Make-up exams are only possible for **medical emergencies** and/or **grievance of immediate family members**. To qualify for a make-up exam, the student must provide the following:
- a) For medical emergencies, a letter **signed by a practicing physician**, and in the letter, it must be clearly stated that **your medical conditions excuse you from class/exam duties**. A routine physical is unlikely to qualify (since it's not an emergency) and you're encouraged to re-schedule your medical appointment in such cases.
 - b) For immediate family members passed away, ideally you will present a death certificate, or a letter signed by an official. If this is not possible, a **signed letter** verifying the death from a close relative is acceptable. For death/illness of non-immediate family members, you must let me know in advance; approval is case by case.
 - c) Excuses that do **NOT** qualify for a make-up exam, include but are not limited to: personal travels, job interviews, family vacations, weddings, flight tickets already purchased, not registering for the exam on time, being late for the exam, etc.
- 5) The following grading policy will be enforced if a make-up exam is approved:
- a) The curving of grades, if necessary, is at the instructor's discretion and not necessarily the same as the regular exam.
 - b) While the instructor will try her best to make the formats and difficulty levels of the make-up exam similar to the regular exam, it cannot be guaranteed that they are exactly the same.

- c) If the student missed TEST I for legitimate reasons and elect to merge the score to TEST II, the student acknowledges and is willing to accept that Test II may have different difficult levels from Test I, which will not be adjusted or compensated for the student's final grade.
- 6) The testing center has extremely limited capacity near the end of the semester. **It is highly likely that a make-up exam cannot be scheduled from an operational perspective**, despite the student having legitimate excuses to miss them.
 - a) In this case, it is reminded that due to the fairness concern, exams must be conducted at the testing center.
 - b) If a make-up exam cannot be scheduled at the testing center, the student will receive a grade of **Incomplete (I)**, which would allow the student to take a make-up exam during the first 8 weeks of the next long semester.
5. **Group Project:** The class will have a group project. A group of **Eight** students can work together on the project. A detailed description for this project will be given later. All the groups must be formed before **Mar 1**. Each group must have a leader who is responsible for submitting the proposal, slides, and final paper by the due date. No late submissions will be accepted.

A student's grade on group project will be subject to peer evaluations at the end of the semester. Suppose, for example, that your group's score on the project is 95% and you receive an average evaluation of 96% from your teammates and yourself. Then your overall score for the group project will be $95\% \times 96\% = 91.2\%$. Please refer to last page for a sample peer evaluation form.

In case a member does not perform to the team's expectation in group project by constantly missing group meetings, failing to provide requested information in a timely fashion, contributing work that is poorly done, or exhibiting other unprofessional behaviors, the other members may decide to drop him/her from the group. However, in the interest of fairness, the five-step procedure outlined below must be closely followed:

- 1) There needs to be unanimous agreement among all other team members that the student's performance is unsatisfactory.
- 2) The concern must be conveyed to the person in writing and discussed with him/her in person. The written notice must be signed and dated by the rest of the group.
- 3) A copy of the above-mentioned notice has to be submitted to the instructor at the same time.
- 4) The student has one week of class time to improve his/her performance.
- 5) If no satisfactory improvement is made over the one-week period, then a final written notice of dropping the person as a member of the team will be signed and dated by the other members and given to him/her. In the meanwhile, a copy of the document must be forwarded to the instructor.

If a student is dropped from a team and not accepted by another, then he/she must complete the remaining assignments on an individual basis or loses the points.

6. **Extra Credit:** No additional work for extra credit is possible in this class.

Letter Grade Distribution

Score	Letter Grade	Score	Letter Grade
93 and above	A	73 - 76.99	C
90 - 92.99	A-	70 - 72.99	C-
87 - 89.99	B+	67 - 69.99	D+
83 - 86.99	B	63 - 66.99	D
80 - 82.99	B-	60 - 62.99	D-
77 - 79.99	C+	59.99 and below	F

* - If you believe that your exam is incorrectly graded or that your grade is incorrectly posted, please contact me via e-mail (i.e., in writing) as soon as possible. You have 7 days after the grade has been posted to voice your concern. After 7 days have passed, your posted grade will be assumed to be correct and accurate. Detailed letter grade guidelines follow.

- 1) To ensure predictability, it is promised that for both tests, curving will be carried out if necessary to bring the median or the mean scores to at least 75%. The curving method is completely at the discretion of the instructor (apart from the end-goal of bringing the median or mean scores to at least 75%), and will not be disclosed to students. Curved test scores will be posted as soon as possible after each test. There is no need to contact the instructor before test grading and curving is completed.
- 2) It is also promised that additional curving will be carried out in the end until 40% of the students get at least an A-.
- 3) When curving is implemented, the scores after curving will always be higher than or equal to the original scores. Under no circumstances will original scores be curved down.
- 4) No preferential treatment can be given to any individual student, regardless of his/her personal or academic situations. Bonus opportunities might be offered to the entire class, but no "bonus" points or activities possible for individual student.
- 5) Apart from the promised curving in bullet point 2 and 3, no additional curving will be carried out. Cut-off lines for letter grades are **hard**, meaning that even if your grade is 89.9 your letter grade must still be B+. No "rounding" can be carried out.

Comet Creed

As a Comet, I pledge honesty, integrity, and service in all that I do.

Policies

Communication

E-mail is the best way to reach Prof. Liu. Any issues that require action MUST be handled by email so that there is a written record of need. Email is also recognized as an official mode of university correspondence; therefore, you are responsible for reading your email for university and course-related information and announcements. You are responsible for keeping the university informed about changes to your email address. You should check your email regularly and frequently to stay current with university-related communications, some of which may be time-critical.

Classroom Policy

Please turn off your mobile phones and other electronic devices to avoid disturbing. Please arrive on time and leave after class ends. Remember that your classroom citizenship will be considered in your in-class participation grades.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in groups or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student Accessibility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

In-Class Recording

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student Accessibility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student Accessibility accommodation. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to [UT Dallas Syllabus Policies and Procedures - The University of Texas at Dallas](#) webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to [UT Dallas Syllabus Policies and Procedures - The University of Texas at Dallas](#) webpage for these policies.

Schedule of Lectures and Readings

Course Topics: This course includes two main sections: Regression Analysis with Cross-Sectional Data and Regression Analysis with Time Series Data/Panel Data. The course is cumulative in that the material builds on each other. While students are expected to have seen some material introduced in this course in previous courses, this course focuses on mastery of econometric models and applications of econometric models to the study of business and economic events. If at any point you do not understand the material, you must seek additional help from the instructor, teaching assistant or a tutor as mastery of the material at each section is required to move on to the next section.

(Tentative) Course Schedule:

Week (Dates/Mondays)	Content
Week 1 (Jan 15)	Syllabus Access to Stata Lecture 1. The Nature of Econometrics and Economic Data (Chapter 1)
Week 2 (Jan 22)	Lecture 2. The Simple Regression Model (Chapter 2)
Week 3 (Jan 29)	Lecture 2. The Simple Regression Model (Cont.)
Week 4 (Feb 5)	Lecture 3. Multiple Regression Analysis: Estimation (Chapter 3)
Week 5 (Feb 12)	Lecture 4. Multiple Regression Analysis: Inference (Chapter 4)
Week 6 (Feb 19)	Lecture 5. Multiple Regression Analysis: Further Issues (Chapter 6)
Week 7 (Feb 26)	Lecture 6. Multiple Regression Analysis with Qualitative Information (Chapter 7)
Week 8 (Mar 4)	MIDTERM – Mar 7 in Testing Center: Lectures 1 – 5

Week 9 (Mar 11)	No Class (Spring Break)
Week 10 (Mar 18)	Lecture 7. Basic Regression Analysis with Time Series Data (Chapter 10)
Week 11 (Mar 25)	Lecture 8. Further Issues in Using OLS with Time Series Data (Chapter 11)
Week 12 (Apr 1)	Lecture 8. Further Issues in Using OLS with Time Series Data (Cont.)
Week 13 (Apr 8)	Lecture 9. Difference-in-Differences Estimation and Fixed Effects Model (Chapter 13)
Week 14 (Apr 15)	Lecture 10. Instrumental Variables Estimation and Two Stage Least Squares (Chapter 15)
Week 15 (Apr 22)	FINAL – Apr 25 in Testing Center
Week 16 (Apr 29)	Group Project Presentation
Week 17 (May 6)	Final Paper Submission (physical attendance not required)

** - The descriptions and timelines contained in this syllabus are subject to change at the discretion of the professor. Any changes will be communicated in class, via e-mail listserv, and posted on eLearning. It is the student's responsibility to stay informed of any changes.*

**** By enrolling in this course, you are agreeing to the terms outlined in this syllabus. ****

I look forward to a fun and productive semester with you all!

BUAN/MECO 6312

Peer Evaluation Form for Group Project

Instructions: The information submitted is final and cannot be changed. So please rate each of your fellow team members with respect to the criteria listed in the table below. Be honest, reasonable, and fair.

Class session: _____

Group number: ____

	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7	Yourself
Name/NetID								
Meeting attendance (15%)								
Punctuality of work (15%)								
Fair share of work (30%)								
Quality of work (40%)								
Total (100%)								

Name: _____

Signature: _____

Date: _____

Comments (Must be provided if you gave any group member(s) less than 75% total grade):
