University of Texas at Tyler

ECON 4355: Econometrics

Fall 2022

Instructor: Meryem Saygili

Office: CAS 140

Email: msaygili@uttyler.edu

Time and Place: TuTh 11:00 am - 12:20 pm @ HPR 248

Office Hours: TuTh 12:30 pm – 2:00 pm @ CAS 140 or Online via Zoom (and by appointment)

Zoom link

Meeting ID: 851 8896 1807

Passcode: Fall2022

Note: If I or a significant number of students get sick with COVID, flu, etc., we may temporarily switch to Online synchronous classes.

Course Description: This course provides an introduction to econometric methods. The course introduces basic tools of regression analysis and hypothesis testing in economics. Students will learn to use software for econometric analysis and utilize it to conduct their own empirical research.

Student Learning Outcomes

1) Explain the basics of simple and multivariate regression analyses.
2) Interpret results from regressions and test hypotheses.
3) Use a statistical package for statistical and regression analyses.
4) Plan and carry out a simple empirical research project.
5) Write an empirical research paper.

Grading Policy: The components of the final grade are:

Exam 1	20%
Exam 2	20%
Homework	20%
Research Project	40%

The course will consist of two exams (20% each). The exams will be on **Tuesday, October 11th, and Tuesday, November 29th.**

You will also have homework assignments (20%). These will include problems as well as data questions that require the use of econometrics software. We will either use STATA or R.

Your project will be a research paper that answers a well-defined economic question using the econometric methods taught in the course (40%). The structure and timeline for the project are as follows:

Step 1 (10%): Come up with a well-defined question that can be answered by regression analyses. The Canvas course page has a sample of student research papers, which may help you find an idea. Obtain your data. An interesting question alone is not enough. Make sure you have the data you need. I encourage you to come and see me during office hours to discuss your question and data sources. Submit your question and the specific data set/source you will use on **Thursday, September 29th**. On this day, each of you will

- present your question and outline your research plan
- show and describe your data set

A few slides would be enough. State your question, explain why it is important, and what you expect to find. Also, show your data, your dependent and independent variables.

Step 2 (10%): Write a literature review. The literature review is an important part of research. You learn what has been already done in the literature and what is missing. Published papers also guide you on how to specify your regression equation, which relevant variables you should include in your regress, etc. In this second step, I want you to summarize what has been done in the literature briefly, explain how your question is different from previous studies, and how you hope to contribute to the literature. Submit this second part on **Thursday, October 20th.** On this day, you will present a draft of your project that includes

- an introduction (restate your question and motivation)
- literature review
- preliminary results (if available)

8-10 slides should be enough.

Step 3 (20%): Carry out the empirical analysis. Regression results and the discussion of those results should constitute the third section of your paper. Finish your research paper by including a conclusion section where you summarize your question, the methods you followed, and your results in a couple of paragraphs. Submit your completed project electronically by the end of **Friday, November 18th.** This deadline is sharp. No submissions after this date will be accepted. I will try to provide my feedback to you asap so you can revise your paper and present the polished version in class after the Thanksgiving break. You can submit a revised version of your work until Wednesday, November 30th for a better grade.

Prepare slides for your project and present them during the last class meeting on **Thursday, December 1st**.

I do not like imposing page restrictions, but your paper should not be too short (less than 10 pages: double space, Times New Roman, font size 12) or too long (more than 30 pages). I save your projects for my records, and I may use them as examples for future students (Let me know if you object to this).

Grading Scale: I do not have a set grading scale. I will compute your weighted average course score from your scores on the above components. I will assign final letter grades based on your score relative to the

distribution of scores in the class. The percentage of students receiving any particular letter grade is not predetermined. All students can get a C or above with the majority receiving an A or a B.

THERE IS NO MAKE-UP EXAM. If you know you will miss an exam because of religious holidays, athletic team requirements, etc., let me know at the beginning of the semester so we can arrange an alternative test date that suits you. If you miss an exam because of an emergency such as medical problems or the death of a family, I exempt you from that exam and reweight your final score accordingly. For example, if you miss one exam, the other exam will make up 40% of your final grade. I do this only if you bring official proof like a doctor's note or a death certificate. If you miss a test without an excuse, you get zero.

Course Structure: I will use Canvas for administrative matters related to the course. Make sure you receive emails sent through Canvas.

Textbook (recommended, not required): Introductory Econometrics: A Modern Approach by Jeffrey M. Wooldridge, 7th edition. The library has some copies if you want to use the textbook.

Course Outline: (topics near the end to be covered as time permits; "W"=Wooldridge)

1. Introduction (W 1)

    a. What is econometrics?
    b. Types of economic data
    c. Causality vs. correlation

2. The Simple Regression Model (W 2.1-2.5)

    a. Model and assumptions
    b. Ordinary least square (OLS) estimator
    c. Goodness-of-fit and R-squared
    d. Non-linear (logarithmic) transformations

3. The Multiple Regression Model (W 3)

    a. How do the simple regression results extend?
    b. Omitted variables bias
    c. Multicollinearity
    d. Gauss-Markov theorem: efficiency of OLS

4. Statistical Inference ("finite sample") for OLS (W 4)

    a. Confidence intervals
    b. Single parameter tests: "t-test"
    c. Two-side vs. one-sided test
    d. P-values
    e. Multiple restriction tests: "F-test"

5. Asymptotic ("large sample") Theory for OLS (W 5.1-5.2. skip the LM statistic in 5.2)

6. Additional Issues in Regression Analysis

    a. Binary variables (W 7.1-7.4, 7.6)

b. Interaction variables and polynomials (W 6.2)
c. Heteroskedasticity (W 8.1-8.3, skip LM test in 8.2, skip White test in 8.3)

7. Panel Data (W 13, 14.1, 14.3)

a. Pooled cross sections
b. Fixed effects

Note: The Census date (last day to drop without W) is **Friday, September 2nd.**

University Policies and Information

- **Withdrawing from Class**: Students are allowed to withdraw (drop) from this course through the University's Withdrawal Portal. Texas law prohibits students who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at other 2-year or 4-year Texas public colleges and universities. Make sure to consider the impact withdrawing from this class has on your academic progress as well as the financial implications. We encourage you to consult your advisor(s) and financial aid for additional guidance. CAUTION #1: Withdrawing before census day does not mean you get a full refund. Please see the Tuition and Fee Refund Schedule. CAUTION #2: All international students must check with the Office of International Programs before withdrawing. All international students are required to enroll full-time for fall and spring terms.
- **Final Exam Policy**: Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members are required to maintain student final examination papers for a minimum of three months following the examination date.
- **Incomplete Grade Policy**: If a student, because of extenuating circumstances, is unable to complete all of the requirements for a course by the end of the semester, then the instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in lieu of a grade only when all of the following conditions are met: (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all course work or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor; and (c) the student presents these reasons prior to the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average for a student. The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to complete all of the work for the course within the time limit, then the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has not been assigned within one year, then the Incomplete will be changed to an F, or to NC if the course was originally taken under the CR/NC grading basis.
- **Grade Appeal Policy:** UT Tyler's Grade Appeal policy requires the completion of a Grade Appeal form for this action to take place. The grade appeal begins with the instructor of your course. If you do not agree with the decision of the instructor, you may then move your appeal to the department chair/school director for that course. If you are still dissatisfied with the decision of the chair/director, you may move the appeal to the Dean of the College offering that course who has the final decision. Grade appeals must be initiated within sixty (60) days from the date of receiving the final course grade. The Grade Appeal form is found on the Registrar's Form Library.
- **Disability/Accessibility Services**: The University of Texas at Tyler has a continuing commitment to providing reasonable accommodations for students with documented disabilities. Students with

disabilities who may need accommodation(s) in order to fully participate in this class are urged to contact the Student Accessibility and Resources Office (SAR) as soon as possible to explore what arrangements need to be made to ensure access. If you have a disability, you are encouraged to visit the SAR Portal (https://hood.accessiblelearning.com/UTTyler/) and complete the New Student Application. For more information, please visit the SAR webpage or call 903.566.7079.

- **Military Affiliated Students**: UT Tyler honors the service and sacrifices of our military affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with me if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make me aware of any complications as far in advance as possible. I am willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. Campus resources for military affiliated students are in the Military and Veterans Success Center (MVSC). The MVSC can be reached at MVSC@uttyler.edu, or via phone at 903.565.5972.
- **Academic Honesty and Academic Misconduct:** The UT Tyler community comes together to pledge that "Honor and integrity will not allow me to lie, cheat, or steal, nor to accept the actions of those who do." Therefore, we enforce the Student Conduct and Discipline policy in the Student Manual Of Operating Procedures (Section 8).
- **FERPA**: UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in University Policy 5.2.3. The course instructor will follow all requirements in protecting your confidential information.
- **COVID Guidance**: It is important to take the necessary precautions to ensure a healthy and successful year. UT Tyler continues to urge you to protect yourselves against the flu, COVID and any new threats that may be developing. Be diligent about preventive measures such as washing hands, covering sneezes/coughs, social distancing and vaccinations, which have proven to be successful in slowing the spread of viruses. Encourage those who don't feel well to stay home, and if they show symptoms, ask them to get tested for the flu or COVID. Self-isolation is important to reduce exposure (CDC quarantine/isolation guidelines). Please work with your faculty members to maintain coursework and please consult existing campus resources for support.
- **Absence for Official University Events or Activities**: This course follows the practices related to approved absences as noted by the Student Manual of Operating Procedures (Sec. 1 -501).
- **Absence for Religious Holidays:** Students who anticipate being absent from class due to a religious holiday are requested to inform the instructor by the second class-meeting of the semester.
- **Campus Carry:** We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at http://www.uttyler.edu/about/campus-carry/index.php.

Student Resources
Resources to assist you in this course
- UT Tyler Student Accessibility and Resource (SAR) Office (provides needed accommodations to students with document needs related to access and learning)
- UT Tyler Writing Center
- The Mathematics Learning Center
- UT Tyler PASS Tutoring Center
- UT Tyler Supplemental Instruction
- Upswing (24/7 online tutoring) - covers nearly all undergraduate course areas
- Robert Muntz Library and Library Liaison
- Canvas 101 (learn to use Canvas, proctoring, Unicheck, and other software)
- Digital Support Toolkit (for supported courses only. Students are automatically enrolled in the toolkit for supported courses)

- LIB 422 -- Computer Lab where students can take a proctored exam
- [The Career Success Center](#)
- [UT Tyler Testing Center](#)
- [Office of Research & Scholarship Design and Data Analysis Lab](#)

Resources available to UT Tyler Students

- [UT Tyler Counseling Center](#) (available to all students)
- [TAO Online Support Center](#) (online self-help modules related to mental & emotional health)
- [Military and Veterans Success Center](#) (supports for all of our military affiliated students)
- [UT Tyler Patriot Food Pantry](#)
- [UT Tyler Financial Aid and Scholarships](#)
- [UT Tyler Registrar's Office](#)
- [Office of International Programs](#)
- [Title IX Reporting](#)
- [Patriots Engage](#) (available to all students. Get engaged at UT Tyler.)