

University of Maryland, College Park
Master of Science Program in Applied Economics
Washington, DC location: 1400 16th St, NW, suite 140
Fall 2021

ECON 645 - Empirical Analysis III: Econometric Modeling and Forecasting (VIA ZOOM)

Note: This is a “mostly online” section, with weekly synchronous online meetings that occur within the noted timeframe. However, students are required to attend in-person proctored exams (midterm and final exam). The exams are the only in-person component of the course, and will be administered at 1400 16th Street, NW in Washington, DC.

Instructor: Cristina Tello-Trillo

Email: Tellotri@umd.edu

Class Meets: Mondays 7-9:15pm. via Zoom

- There will be two 45/65-minutes meeting. First session will usually run from 7:00pm-7:50pm, followed by a 20 min break, then a second session from 8:10pm-9:00/9:15pm.

Instructor Office Hours: Fridays by appointment, also via Zoom.

TA: Xue Song (XSong1@umd.edu)

TA Office Hours: Xue will have 1 or 2 weekly Zoom sessions per week. TBD.

Pre requisites: ECON 644

Course description: This is a course in applied econometrics, emphasizing the implementation of modern econometric techniques to analyze concrete economic problems, using real data and recent econometric software. Though not a theoretical course, we will introduce some basic theory and concepts to motivate an appropriate use of the methods.

Our program has 7 general learning objectives:

- 1. Ability to understand, evaluate and analyze economic data**
- 2. Ability to understand and interpret statistical evidence from economic data**
- 3. Ability to apply empirical evidence to assessing economic arguments**
4. Ability to apply macroeconomic theories to policy discussions
5. Ability to apply microeconomic theories to policy discussions
- 6. Ability to communicate economic ideas to a broader audience**
- 7. Ability to evaluate the effectiveness of policy programs using sound economic techniques**

The learning outcomes that pertain to this course are: 1, 2, 3, 6, and 7

At the end of the course, you should be able to build, estimate and interpret your own econometric models for concrete economic problems, write professional reports/papers using econometric methods, use STATA software for econometric and statistical analysis, and understand empirical papers in the field of economics and gain sense of what makes an empirical paper convincing.

Textbooks and Software:

Required:

- Introductory Econometrics: A Modern Approach, 7th edition, Jeffrey M. Wooldridge. (5th /6th edition are also acceptable)
- Data Management Using STATA: A practical Handbook, Michael N. Mitchell (2010)
- Copies of the syllabus, lecture notes, problem sets and other relevant documents will be made available through the course website.
- We will use STATA for the empirical analysis. You can order a student version which is discounted. Information on how to order STATA is available on the last page of this syllabus.

Recommended:

- Microeconometrics using STATA, Cameron and Trivedi (2009)
- Mostly Harmless Econometrics: An Empiricist's Companion, Angrist and Pischke (2009)

Grading:

- Midterm Exam: 30%
- Final Exam: 35%
- Problem sets 1-4: 20%
- Paper presentation: 10%
- Online Discussion Sessions: 5%

The problem sets will include theoretical problems and empirical assignments. You will have a week to solve each problem set. I encourage you to discuss the problems with your classmates. From my experience as a student, you can learn a great deal from your fellow students. However, after discussing problems, you should solve the problems on your own. Joint assignments will not be graded.

All problem sets are to be submitted electronically as STATA log files on ELMS and are due before class on Mondays at 6.45pm.¹ Since answers are posted on ELMS the same day, late submissions are not acceptable.

Paper Presentations:

Students in teams of 3 (or 2 depending on enrollment) will choose one research paper that is related to one of the topics covered in the course. Please put your name next to the paper that you are interested in presenting in [this google sheet](#). Your job is to create a 15-minute presentation describing the paper, focusing the bulk of the time explaining what econometric techniques were used in their “main” regression, and if possible critiquing the technique used based on what we’ve covered in the course

¹ If some exercises need to be done by hand, students need to scan (or take high quality photos) the solutions and submit them electronically.

to that point. You will be required to submit a first draft of the presentation to me no later than 8PM the Thursday evening preceding your presentation date. I will write back with feedback which should be incorporated into the final presentation, generally by Saturday evening. Presentations will be scattered throughout the course; they will take place 15 minutes before class starts on Monday (6:45pm), attendance is mandatory for the presenters but not for the rest of the class. I will record the presentation and post the presentation link on ELMS. If you know you have to miss a class on a given Monday evening, please do not sign up for that evening's presentation.

Online Discussions:

I will post a question/series of questions relevant to the course material & presentations every *Thursday at 11am*. The discussion will be open until *Saturday at 11am* for you to comment/respond. I will check in twice a day to participate/respond/redirect.

Final Course Grades

Students' grades on each component of the course will be weighed according to the scale above to calculate their numerical course grade. The numerical course grades will be translated into letter grades as follows:

| | | | | | | | | | | |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 93-100 | 90-92 | 80-89 | 70-79 | 60-69 | 50-59 | 40-49 | 30-39 | 20-29 | 10-19 | 0-9 |
| A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |

The grade A+ is reserved for the top student or two in the course (or maybe no one) – at the instructor's discretion.

Tentative Course Outline:

| Class #: | Date | Topic | Book Chapter | Problem Set/Presentation |
|----------|-----------------------------------|--|--|---|
| 1 | August 30 | Introduction, Endogeneity, Omitted Variable Bias, Instrumental Variables | Wooldridge Chapter 3.3, 9.4, 9.5, 15.1 | |
| 2 | Friday September 3 ² : | Instrumental variables, 2SLS | Wooldridge Chapter 15.1-15.5 | |
| 3 | September 13 | Panel Data I | Wooldridge Chapter 13, 14.1, first half of Mitchell, Ch. 5 | Pset #1 Due <i>Student's presentation</i> |
| 4 | September 20 | Panel Data II | Wooldridge Chapter 14.1-14.3 & 8 and Mitchell Ch. 6 | |
| 5 | September 27 | Natural Experiments and Difference-in-Differences | | Pset #2 Due <i>Student's presentation</i> |
| 6 | October 4 | Review + useful commands in STATA | Mitchell Ch. 2- Ch. 4, Ch. 7 | Pset #3 Due <i>Student's presentation</i> |
| 7 | October 11 | Midterm | | |
| 8 | October 18 | Multivariate/Dummy regression analysis + Probit | Wooldridge Chapter 7.1, 7.5, 17.1 | <i>Student's presentation</i> |
| 9 | October 25 | Logit | | |
| 10 | November 1 | Intro to Time Series I | Wooldridge Chapter 10-12 | Pset #4 part I Due <i>Student's presentation</i> |
| 11 | November 8 | Intro to Time Series II | Wooldridge Chapter 10-12 | Pset #4 part II Due <i>Student's presentation</i> |
| 12 | November 15 | Final Exam | | |

² Make-up class since we have no classes on Labor Day Sept 6.

Academic Integrity:

The University of Maryland has a nationally recognized Code of Academic Integrity. You should inform yourself about the UMD policies related to academic misconduct:

<https://www.studentconduct.umd.edu/home/current-students> (Links to an external site.)

Cases of academic misconduct, including plagiarism and giving or receiving unauthorized assistance on exams, will be referred to the UMD Office of Student Conduct. If found responsible for academic misconduct, students can be subject to sanctions. The standard sanction for graduate students found responsible for cheating on exams is expulsion from the university.

The exams in this course will ask students to affirm the UMD Honor Pledge: “I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination.”

Other Standard Policies for the Program and the University of Maryland

Work Load: Mastering the material covered in this course requires a significant amount of work outside of class. Students should expect to spend more time outside of class than in class – typically at least twice as much time. The courses in our DC program are 12-week courses that cover all the same material as a traditional semester-long 3-credit course (15 weeks). The compressed schedule makes it possible to complete our degree in just 15 months if you take 2 courses each term. But the compressed schedule also implies an accelerated pace with an average of 25% more work per week in a given course ($15/12 = 1.25$). The normal full-time load in a master’s program is 3 courses per semester, or 6 courses per year. The weekly work load when taking 2 of our DC courses per term is equivalent to the load from 2.5 “normal” 15-week courses - so $2.5/3.0=83\%$ of a full-time load. However, the DC program takes just 1 week off between terms. Students who take 2 courses per quarter in our program complete 8 courses per year. So over the course of a year, taking 2 courses per quarter in our DC program is equivalent to 133% of a “normal” full-time load in the traditional semester-based program ($8/6 = 1.33$).

Academic Progress: The graduate school requires that students maintain a GPA of at least 3.0. Students whose cumulative GPA falls below 3.0 will be placed on academic probation by the graduate school. Students on academic probation must ask the program’s director to petition the graduate school if they want to remain in the program. The petition must include a plan for getting the student’s GPA up to at least 3.0. Students who do not live up to their plan can be forced to leave the program without having earned the degree. Note: a grade of “B” corresponds to a GPA of 3.0. A grade of “B-” corresponds to a GPA of 2.7.

Student Conduct: Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to show civility to one another or myself will be referred to the Office of Student Conduct. You are expected to adhere to the Code of Student Conduct.

Excused Absences: The University of Maryland’s policy on excused absences is posted here:

<http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g>

Please note:

If you miss any class meetings for any reason, you are still responsible for all material covered during the meeting you missed. It is your responsibility – not the instructor’s – to make sure you catch up on the missed material. Instructors routinely facilitate things by posting lecture notes, etc.

If you need to miss an exam or other graded course requirement because of illness, injury, or some other emergency: Follow doctor's orders and get documentation. Get in touch with the instructor as soon as you're able – preferably prior to missing the exam or deadline. Communicate with the instructor to make up the course requirement as soon as possible. You are entitled to recover before you make up the course requirement, but you are not entitled to extra days to study beyond the time the doctor's note says you're incapacitated. If you are incapacitated for more than a week or so beyond the end of the term, your grade in the course will be an “Incomplete”. In such cases you must negotiate a plan with your instructor for completing the course requirements. Once you make up the course requirement the instructor will change your "I" to the appropriate letter grade.

School Closings and Delays: Information regarding official University closing and delays can be found on the campus website and the snow phone line: (301) 405-SNOW (405-7669) The program director will also announce cancellation information to the program as an announcement on the program’s ELMS/Canvas site. This will generally be done by 1:00 p.m. on days when weather or other factors are an issue. If classes need to be cancelled during the semester, it may be necessary to move the final exam back a week so missed classes can be made up.

UMD Counseling Center: Sometimes students experience academic, personal and/or emotional distress. The UMD Counseling Center in Shoemaker Hall provides comprehensive and confidential support services that promote personal, social, and academic success. The cost of these services is covered by the fees you already paid when you registered for classes, and there is no additional charge if you use the services. Proactively explore the range of services available, including the Counseling Service, Accessibility and Disability Service, and the Testing Office, all described at <http://www.counseling.umd.edu/>

Graduate Academic Counselor: The UMD Graduate School also has an academic counselor available to support students who are having difficulty navigating mental health resources on campus, are considering a leave of absence and/or need assistance finding mental health care off campus. The Graduate Academic Counselor also facilitates bi-weekly Graduate Student Circle Sessions which provide an opportunity to learn about resources and connect with other graduate students. Students can learn more about the Graduate Academic Counselor by going to: <https://gradschool.umd.edu/gradcounselor>

Students with Disabilities: The University of Maryland does not discriminate based on differences in age, race, ethnicity, sex, religion, disability, sexual orientation, class, political affiliation, or national origin. Reasonable accommodations will be arranged for students with documented disabilities. Students who have an accommodations letter from the Accessibility and Disability Service (ADS) should meet with me during the first few weeks of the semester to discuss and plan for the implementation of your accommodations. If you require reasonable accommodations but have not yet registered with ADS, please contact the Accessibility and Disability Service at 301-314-7682 or adsfrontdesk@umd.edu.

Course Evaluations: Near the end of the term, you will receive an email inviting you to submit a voluntary and anonymous course evaluation. Your feedback on courses will be very helpful in improving the quality of instruction in our program.

Building Access: The door to the building at 1400 16th Street is unlocked on weekdays until 7:00 PM. Students who arrive after 7:00 PM or on weekends will find the door locked. You can call the phone on the security guard's desk by dialing (202) 328-5158. If the security guard is off duty or happens to be away from his or her desk when you arrive, you can always also go around to the other door at 1616 P Street and pick up the black phone to the right of that door. You will be connected to the company that handles security for our building. If you tell them you're with the University of Maryland (suite 140 in 1400 16th Street), they should ask you for a password. When you tell them the password, they will buzz you in. You can get the password from the program coordinator, the TAs, or the program director. Please note: the building security staff are not able to buzz you in at the 1400 16th Street door. You have to go around to the 1616 P Street door to be buzzed in.