Course Information

Course Title: Empirical Analysis I
Course Number: ECON 643
Term: Fall/2021
Credits: 3
Course Dates: 8/30-11/15
Course Times: Mondays 6:45-9:30pm, 15-minute break around 8pm
Classroom: 1400 16th St NW, Suite 140

Instructor: Erfan Danesh
Email: Danesh@umd.edu
Office Hours: Saturday 10:00-10:45am (Virtual)

TA: Jake Kramer
Email: KramerJ@umd.edu
Office Hours: Thursday 5:15pm-6pm (Virtual)

Course Description

In this course students will learn about the fundamental aspects of data management and statistics. Emphasis is given on practical application rather than theoretical foundations. The course will cover sampling, basic probability theory, basic statistics, an introduction to regression, and an introduction to Stata. The course includes an empirical replication project, which introduces students to the application of statistics and econometrics in published academic research. ECON 643 is the first course in our program's 3-course Empirical Analysis sequence. ECON 643 is the prerequisite for ECON 644, which is the prerequisite for ECON 645.

Learning Outcomes

Our program has 7 general learning outcomes for students:

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, 5, 6 and 7. Students will master basic statistics at a level of rigor befitting a professional Master of Science degree program in applied economics. Students will be able to perform basic statistical analysis using Stata software. Students will be able to interpret basic statistical results correctly and communicate them professionally in English. Upon completion of the course, students will be prepared to study applied econometrics in ECON 644.

Course Website

All course materials and documents will be posted on the course's ELMS/Canvas website. You can access the site via **https://elms.umd.edu/**. You will need to use your University of Maryland "directory ID" and password.

Communication with Instructor:

The University has adopted email as the primary means of communication outside the classroom, and I will use it to inform you of important announcements. Students are responsible for updating their current email address via **http://www.registrar.umd.edu/current/** (under the first major heading of "Online Transactions" there is a link to "Update Contact Information"). You are required to pay attention to ELMS/Canvas Announcements I send to the class. You should make sure ELMS/Canvas Announcements and messages are forwarded to an email address that you check on a regular basis. Failure to check email, errors in forwarding email, and returned email due to "mailbox full" or "user unknown" are not considered valid excuses for a student missing announcements or deadlines. I will do my best to respond to email within as quickly as possible. I prefer that you contact me via email to danesh@umd.edu, rather than through the ELMS/Canvas messaging system, though I will reply to either kind of message.

Required Textbooks

- Statistics for Business and Economics by Anderson, Sweeney, Williams, Camm, and Cochran, Cengage, 13th or 14th edition (**SFBE**): **Link**

- A Gentle Introduction to Stata by Acock, 5th or 6th edition, Stata Press (**AGIS**): **Link**

- Any additional materials required for the course will be provided through the course website.

Optional Textbooks

- Introduction to Econometrics by **Stock and Watson** (Pearson), 3rd edition: **Link**

- Data Management Using Stata by **Mitchell** (Stata Press), 2nd edition: **Link**

Required Statistical Software

Stata: The latest version is preferred but older versions are likely to suffice for the purposes of this course

Stata is not available through Terpware, but many other software packages, including the Microsoft Office suite which includes Microsoft Excel, are available for free or at a discount to University of Maryland students via Terpware: https://terpware.umd.edu/Windows or https://terpware.umd.edu/Mac

Stata Purchasing Options:

Students in our program are required to purchase Stata. Stata offers different "flavors" and different lengths of licensing. Price varies according to these two factors. Stata also offers discounted pricing for students.

Stata/BE is the least expensive and it should be sufficient for your coursework. With a single-user license, you can install Stata on up to three computers. Description of all the "flavors" are given here:

http://www.stata.com/products/which-stata-is-right-for-me/

The most cost-effective license duration is to purchase a perpetual license (which never expires). The student price for a perpetual Stata/BE license is $225. The student price for an annual license is $94, so more expensive if you end up using Stata for longer than 2 years. Most of our graduates continue to use Stata even after they graduate, so the $225 perpetual license is worthwhile. Perpetual license holders are also entitled to discounted Stata upgrades in the future.

Here is the link for student single-user purchase:

https://www.stata.com/order/new/edu/gradplans/student-pricing/

During the checkout process you will be asked to verify your student status. I believe this can be done by uploading a copy of your student ID, your tuition bill or statement, or verifying your "@umd.edu" email address.

Laptop Computer Requirement: Completing some of this course's requirements will require a laptop computer (not a netbook or a tablet!) with at least 1 GB of RAM and at least 5 GB of free space available on the hard-drive. This is very minimal and basically any computer bought in the past few years should be adequate for the purposes of this course. To effectively work with Stata a larger screen is preferred. Screens smaller than 13 inches are probably not practical.

Course Outline

Week #/Date	Topic	Deliverable
Class #1 8/30	Meet each other and introduce the course TA presentation on how to submit HW electronically via ELMS Introduction to online discussion utility in ELMS **SFBE Ch. 1**: Data and Statistics **SFBE Ch. 2**: Descriptive Statistics: Tabular and Graphical Display	
9/6	No class on Labor Day	
Class #2 Saturday 9/11 10:00am-12:45pm	**SFBE Ch. 3**: Descriptive Statistics: Numerical Measures **AGIS Ch. 1-3, Mitchell, Ch. 2:** Intro to Stata, Importing Data	
Class #3 9/13	**SFBE Ch. 4:** Introduction to Probability **AGIS Ch. 4:** Stata: Log Files and Do Files	Assignment #1 Due
Class #4 9/20	**SFBE Ch. 5:** Discrete Probability Distributions **SFBE Ch. 6:** Continuous Probability Distributions **AGIS Ch. 5**: Descriptive Analysis Using Stata	Assignment #2 Due
Class #5 9/27	**SFBE Ch. 7:** Sampling and Sampling Distribution **AGIS Ch. 6**: Statistics and Graphs for one Variable	Assignment #3 Due Group members for data project should be emailed to TA and instructor. A project proposal, brief (half a page) description of the project, should also be submitted.
Class #6 10/4	**Midterm Exam** **SFBE Ch. 8:** Confidence Interval Estimation	
Class #7 10/11	**SFBE Ch. 9:** Hypothesis Testing **SFBE Ch. 10:** Inference about Means and Proportions with Two Populations **AGIS Ch. 7**: Tests for or two means	
Class #8 10/18	**SFBE Ch. 11:** Inference about Population Variances **SFBE Ch. 12:** Comparing Multiple Proportions	Assignment #4 Due
Class #9 10/25	**SFBE Ch. 13:** Analysis of Variance (Anova) **AGIS Ch. 9**: Analysis of Variance	Assignment #5 Due First Draft of Data Project Due
Class #10 11/1	**SFBE Ch. 14:** Simple Linear Regression **AGIS Ch. 8**: Linear Regression	Assignment #6 Due
Class #11 11/8	**Stock and Watson, Ch. 6:** Introduction to Omitted Variable Bias and Omitted Regression **Material that might be covered if time permits:**	Final Draft of Data Project Due

	- Introduction to Jupyter Lab with Stata Kernel - Reproducible Research and version control	
Saturday 11/13 10:00am-1pm	**Optional Review Session**	
Class #12 11/15	**Final Exam**	

Note: This is a tentative schedule, and subject to change as necessary – monitor the course ELMS page for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed. As we go through the course material, I may rebalance or move around the lecture contents depending on in class progress.

Grading Structure

Description	Percentage %
Homework	**25%**
Midterm	**25%**
Online Discussions	**5%**
Data Project	**10%**
Final Exam	**35%**
Total	**100%**

Homework (25 course points)
ECON 643 has six assignments which cover the material most recently covered in class. Homework assignments will always be posted to the *Assignments* section of the course ELMS/Canvas page. Student are strongly encouraged to submit a scanned copy of their homework assignment but can also hand in a physical copy.

Each homework assignment will be graded out of 100 and a student's overall score of the homework assignments will be determined by taking an average of all the assignments. Each assignment is due before the class starts. There is a 20% penalty for a late assignment. If you believe you have a legitimate reason for missing an assignment due date, please contact the instructor.

Online Discussions (5 course points)
We will not have enough time for lengthy discussions in the class time. Most of the discussions will happen online. Each week after class, I will open one or several discussion threads related to that weeks' course material. I will open the online discussions by 11:59 PM after class each week.

The students will have until 12:00 noon on Friday to participate in the discussion. To create a more lively discussion, student are encouraged to participate as soon as possible and do not wait until the Friday deadline. I and occasionally your TA will read what's being posted, respond to some things, and redirect the discussion as necessary. The students are expected to answer to the questions and also comment on each other's answers.

Online discussions will be graded for both participation and content (5 course points). The participation grade will be based on the proportion of online discussions to which a student has contributed. Every student can miss one online discussion without consequence. Missing 2 or more online discussions will hurt a student's participation grade. At the end of the term, each student will have multiple weekly online discussion grades (each between 0 and 5). Each student's course grade for the online discussions will be the average of the online discussion grades, after dropping the lowest of the scores.

Midterm Exam (25 course points)

The midterm exam will test everything covered in the course through the previous week. Some or all of the midterm will consist of a series of empirical problems to be solved using Stata and submitted electronically and hence student are required to bring a laptop equipped with Stata to the exam session.

Data Project (10 course points)

Students will use data of their choosing to do an analysis using the tools they have learned this semester. Students will come up with a question, explain its policy relevance, formulate a hypothesis to be tested, and show the results of their study in no more than 4 pages of text (student can also include a maximum of 2 tables and 2 graphs). Students will work in groups (preferably two members and a maximum of three members) for this project.

Students can choose any data of their choosing and try to answer any question that they find interesting, but since this is an introductory course, most student will simply decide to do an empirical replication project. To complete the project students will find a published paper of interest that also has accessible data. They will read at least some of the data into Stata, organize and summarize the data appropriately, and perform some analysis of the data. The final draft of the course project will include a thorough descriptive analysis and a small regression analysis. Students will submit the course project work in 3 installments (see the Schedule for due dates):

- Topic Proposal (2 point)
- First draft, should include descriptive analysis (4 points)
- Final draft (4 points)

Final Exam (35 course points)

I will prepare an exam that I think students should be able to complete in 2 hours, though students are welcome to use 3 hours from 6:30-9:30. The final exam will be cumulative. Some or all of the exam will consist of a series of empirical problems to be solved using Stata and submitted electronically and hence students are required to bring a laptop equipped with Stata to the final exam session.

The final exams will be posted to the course website at 6:30 PM (see course schedule for dates). The exam will be open book, and open note. I will be available to address clarifying questions during the exam. Students can use whatever notes they like, including online resources. Communication with anyone else by any means is prohibited while taking an exam. Communication with anyone by phone, email, text message, online chat, or any other means would be cheating. Students are advised to prepare a compact sheet or two of the most important formulas for quick reference. Students who spend a lot of time leafing through books and web pages will run out of time.

Grades

All assessment scores will be posted on the course ELMS page. If you would like to review any of your grades (including the exams), or have questions about how something was scored, please email me to schedule a time for us to meet and discuss.

Late work will not be accepted for course credit so please plan to have it submitted well before the scheduled deadline. I am happy to discuss any of your grades with you, and if I have made a mistake I will immediately correct it. Any formal grade disputes must be submitted in writing and within one week of receiving the grade.

Final letter grades are assigned based on the percentage of total assessment points earned. To be fair to everyone, I have to establish clear standards and apply them consistently, so please understand that being close to a cutoff is not the same as making the cut (89.99 ≠ 90.00). It would be unethical to make exceptions for some and not others.

At the end of the semester I will add up each student's course points. This will be a number between 0 and 100. I may grade on a curve depending on the overall performance of the students. Numerical course grades will be translated into letter grades as follows:

Final Grade Cutoffs										
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

Academic Integrity

The University's **Code of Academic Integrity** is designed to ensure that the principles of academic honesty and integrity are upheld. In accordance with this code, the Department of Economics does not tolerate academic dishonesty. Please ensure that you fully understand this code and its implications because all acts of academic dishonesty will be dealt with in accordance with the provisions of this code. All students are expected to adhere to this Code. It is your responsibility to read it and know what it says, so you can start your professional life on the right path. **As future professionals, your commitment to high ethical standards and honesty begins with your time at the Smith School.**

It is important to note that course assistance websites, such as CourseHero, are not permitted sources, unless the instructor explicitly gives permission for you to use one of these sites. Material taken or copied from these sites can be deemed unauthorized material and a violation of academic integrity. These sites offer information that might not be accurate and that shortcut the learning process, particularly the critical thinking steps necessary for college-level assignments.

Additionally, it is understandable that students may use a variety of online or virtual forums for course-wide discussion (e.g., GroupME or WeChat). Collaboration in this way regarding concepts discussed in this course is permissible. However, collaboration on graded assignments is strictly prohibited unless otherwise stated. Examples of prohibited collaboration include: asking classmates for answers on quizzes or exams, asking for access codes to clicker polls, etc.

Finally, on each exam you must write out and sign the following pledge:

"I pledge on my honor that I have not given or received any unauthorized assistance on this exam/assignment."

Please visit the **Graduate Course Related Policies and Graduate Student Rights and Responsibilities** and follow up with me if you have questions.

To help you avoid unintentional violations, *the following table* lists levels of collaboration that are acceptable for each type of assignment. If you ever feel pressured to comply with someone else's academic integrity violation, please reach out to me straight away. Also, *if you are ever unclear* about acceptable levels of collaboration, *please ask*!

The following table lists levels of collaboration that are acceptable for each type of graded exercise. See each CANVAS-ELMS page for academic integrity expectations for each individual assignment. If you are ever unsure about acceptable levels of collaboration, please ask!

	OPEN NOTES	USE BOOK	SEARCH ONLINE	ASK FRIENDS	WORK IN GROUPS
Homework Assignments	✔	✔	✔	✘	✘
Discussions	✔	✔	✔	✘	✘
Data Project	✔	✔	✔	✘	✔
Midterm Exam	✔	✔	✘	✘	✘
Final Exam	✔	✔	✘	✘	✘

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 each 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 workload 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.

Covid-19 Information:

Up to date information about UMD Covid-19 policies and guidance are posted at **https://umd.edu/4Maryland**. Given the evolving nature of the pandemic, the guidance and policies are subject to change. The plans are always coordinated with state and county health officials, with additional guidance provided by the University System of Maryland. The focus will always be on the health and well-being of our entire campus community.

We strongly urge all students, staff and faculty to read announcements they receive about Covid-related guidance and policy and to stay familiar with the information posted at **https://umd.edu/4Maryland**. We thank you all for your individual=dual efforts to help

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
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, Learning Assistance 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 p.m. Students who arrive after 7:00 p.m. or on weekends will find the door locked. The buildings security guard is stationed at a desk just inside the door until 11:00 p.m. and will let you in. You can also call the phone on the security guards desk by dialing (202) 328-5158. If the security guard is on duty or happens to be away from his or her desk when you arrive, you can 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 are with the University of Maryland, they should ask you for a password. When you tell them the password, they will be able to unlock the door for you. You can get the password from the program coordinator, the TA, 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.