

Master of Professional Studies Program in Applied Economics  
University of Maryland Department of Economics  
**Empirical Analysis II, Spring 2017**

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Location: Tydings 2102  
Date and Time: 6:30pm – 9.15pm Mondays, January 30<sup>th</sup>-May 15<sup>th</sup>, 2017

**Course Objective:** At the end of this class you will know how to do basic empirical economic research using Stata. You will understand how to compute summary statistics and cross-tabulations of datasets: mean values, variance, covariance between variables, and marginal distributions for sub-populations. You will be able to estimate relationships between independent and dependent variables using single and multiple regression, and you will understand when and how to use multiple regression as an effective tool, how to interpret its results, and when more must be done. You will gain experience with binary and categorical dependent variables and with nonlinear models. You will understand how to detect and check for bias and model mis-specification, and how to conduct “classical” hypothesis testing about your selected model. And you will begin to learn how to choose which econometric method is appropriate and viable under which economic conditions.

In addition to gaining experience with the “nuts and bolts” of empirical economic research, you will start to think about the crucial question of distinguishing correlation and causation, as well as assessing a study’s internal and external validity. At the end of this course, you should be able to summarize an empirical paper that uses one or more of the methods taught in the course. You should feel comfortable explaining what the paper is trying to do, how it does that, whether or not it is successful, and what we should or shouldn’t learn from its method and result.

**Course Description:** Three-credit required core course. This is the second in the three-course sequence “Empirical Analysis”: ECON 643, ECON 644, ECON 645. The course provides an introduction to econometric methods with applications to public policy analysis, including hands-on work implementing those methods.

**Course Materials:**

- 1) *Introduction to Econometrics*, by James H. Stock and Mark W. Watson. 3<sup>rd</sup> Edition
- 2) *Data Management Using Stata: A Practical Handbook*, by M. Mitchell. (Stata Press 2010). *A Gentle Introduction to Stata*, by A. Acock. (Stata Press 2014, 4th Ed).
- 3) *Stata 14*. (StataCorp 2015)

The required curriculum for the course is contained in the lectures and problem sets. Stock and Watson (SW) and the other textbooks are very useful, and the content of the course corresponds for the most part with Part II of SW, with other elements taken from the other parts. But the material you will be required to know for the exams will be exclusively the content of the lectures and homework.

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**Grading:** 30% problem sets, 30% midterm, 40% final [cumulative] exam. The lowest problem set grade will be dropped from the computation of final grades. Letter grades for the course will be assigned as follows:

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

**Problem Sets:** Homework will be assigned either shortly before or shortly after the Monday evening lecture, and will be due strictly before the start of the following Monday's lecture, so late work is unacceptable. [In some cases, problem sets may span multiple weeks, with additional questions added after the lecture(s) in the middle. But they will always be due at the start of a lecture.] They must be submitted electronically via ELMS, and when they require the use of Stata, submit both log files and do files in addition to the written answers to questions.

**Collaboration:** You are welcome to collaborate on the problem sets, but be sure to write the names of all collaborators on all turned-in assignments. Each member of a collaborative group must turn in their own problem set, to be graded separately.

**Deadlines:** All assignments are to be submitted electronically on Elms and are due at the beginning of class Thursday 6.45pm. Since answers are handed out at the beginning of class, late submissions are not acceptable. Assignments cannot be rescheduled except in exceptional and documented circumstances; see "University of Maryland Policies" below. The same applies to exams.

**Course Schedule:** In general, the first half of the lecture will be spent introducing concepts in a lecture format, and the second half will be spent on Stata tutorials.

<u>Date</u>	<u>Topic</u>
January 30 <sup>th</sup>	Course Introduction and Review of Statistics: Mean, Variance, Covariance Introduction to Stata
February 6 <sup>th</sup>	Linear Regression with a single independent variable
February 13 <sup>th</sup>	Confidence Intervals and Hypothesis Testing in Regression Models
February 20 <sup>th</sup>	Multiple Linear Regression

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February 27 <sup>th</sup>	Hypothesis Testing in Multiple Regression Models
March 6 <sup>th</sup>	Bias and Mis-specification
March 13 <sup>th</sup>	Midterm (first half of class) Binary and Categorical Independent Variables
March 20 <sup>th</sup>	No lecture (spring break)
March 27 <sup>th</sup>	Nonlinear and Polynomial Regressions
April 3 <sup>rd</sup>	Linear Probability Models
April 10 <sup>th</sup>	Nonlinear Probability Models
April 17 <sup>th</sup>	Assessing multiple regression models: return to mis-specification
April 24 <sup>th</sup>	Panel Data and Fixed Effects
May 1 <sup>st</sup>	Internal and External Validity: the experimental context
May 8 <sup>th</sup>	Difference in Difference Estimators
May 15 <sup>th</sup>	Final Exam

## **University of Maryland Policies**

**Course Website:** Copies of the course syllabus, your grades, and other relevant links and documents will be posted on the course's ELMS/Canvas website. You can access the site via [www.elms.umd.edu](http://www.elms.umd.edu). You will need to use your University of Maryland "directory ID" and password.

**Email:** Email is 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.testudo.umd.edu/apps/saddr/> AND for paying attention to messages I send to the class via ELMS. Failure to check email, errors in forwarding email, and returned email due to "mailbox full" or "user unknown" will not excuse a student from missing announcements or deadlines. I will do my best to respond to email within 36 hours.

**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.

**Academic Integrity:** The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards applicable to all undergraduate and graduate students, and you are responsible for upholding these standards as you complete assignments and take exams in this course. Please make yourself aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information see [www.studenthonorcouncil.umd.edu](http://www.studenthonorcouncil.umd.edu)

**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

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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.

**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, and national origin. Reasonable accommodations will be made to students with documented disabilities. I will make every effort to accommodate students who are registered with the Disability Support Services (DSS) Office and who provide me with a University of Maryland DSS Accommodation form.

**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.

**Access to Morrill Hall and Morrill 1102:** Morrill Hall is locked every day from 7:00 p.m. - 7:00 a.m. Your university ID gives you swipe access to the back door of the building.

Courses that require students to use laptop computers should have the following about minimum laptop computer expectations:

**Laptop Computer Requirement:** Completing some of this course's requirements will require a laptop computer (not a notebook or a tablet!) with at least 1 GB of RAM and at least 5 GB of free space available on the hard-drive. We recommend laptops with at least a 15-inch screen. Screens smaller than 13 inches are probably not practical.

Courses that require students to do empirical work should include the following about Stata:

**Purchasing Stata:** Students in our program must purchase Stata. Stata offers different "flavors" and different lengths of licensing. Price varies according to these two factors. We do not recommend Small Stata since it is too limited for the coursework in our program. Stata/IC is the least expensive and sufficient version 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/>

You can obtain Stata at discounted rates through the Campus GradPlan, in which University of Maryland, College Park is a participating institution. To benefit from the discounted prices, click on the link below and pick the Stata version you would like to buy.

(Note: Disregard the warning at the top which states that you must be a faculty or staff member. That is not correct.) <http://www.stata.com/order/new/edu/gradplans/campus-gradplan/>

Through the Campus GradPlan you can buy either an annual (\$125 for Stata/IC) or a perpetual license (\$198 for Stata/IC). The perpetual license does not expire and is the most cost effective option assuming that you will stay in the program for at least 15 months. There are also upgrade discounts provided to perpetual license holders. During the checkout process you will be asked to verify your "@umd.edu" email address.

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If you wish to buy a 6-month license (\$75 for Stata/IC), you need to order it as a regular student using the following link:

<http://www.stata.com/order/new/edu/gradplans/student-pricing/>

During the checkout process you will be asked to upload a copy of your student ID or another document as a proof of your enrollment.