

Master of Professional Studies in Applied Economics  
University of Maryland  
ECON 643-PR01: Empirical Analysis I  
Spring 2017

**Syllabus** – Revised [2017-02-26](#)

Instructor: John Straub, (301) 405-3531 ([Straub@econ.umd.edu](mailto:Straub@econ.umd.edu))

Office Hours: Wednesdays 5:45-6:15 and by appointment.

Teaching Assistant: Hidehiko Matsumoto (Hide – “Hee-Day”) ([DCmastersTA@econ.umd.edu](mailto:DCmastersTA@econ.umd.edu))

Office Hours: Weekly Office Hours, but not on same day each week. Schedule posted on ELMS/Canvas.

Hide also sends weekly Office Hour reminders via ELMS Announcement each Sunday evening.

Prerequisites:

Admission to the Master of Professional Studies Program in Applied Economics (MPEC).

Note: This requires at least 1 semester of calculus with a grade of at least B-.

Class meets: Wednesdays, 6:45-9:30 p.m.

There will always be a 15-minute break at some point between 7:45 and 8:30.

General Description and Overview

Fundamental aspects of data management and statistics. Emphasis on practical application rather than theory. Emphasis on sampling, basic probability theory, basic statistics, and an introduction to STATA. The course will conclude with an introduction to linear regression analysis using STATA. 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.

Course Objectives

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, and 6

Students will master basic statistics at a level of rigor befitting a professional master’s 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 econometrics in ECON 644.

Required Textbooks

**SfBE:** *Statistics for Business and Economics* by Anderson, Sweeney, Williams, Camm, and Cochran, Cengage, 13<sup>th</sup> edition.

**AGIS:** *A Gentle Introduction to Stata* by Acock (Stata Press), 5<sup>th</sup> ed.

Some additional readings will also be provided via the course’s ELMS/Canvas website.

**Required Statistical Software:** STATA, version 14.

(See detailed purchasing information on the next page.)

Note: 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/List/235>

**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:** 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.testudo.umd.edu/apps/saddr/> AND for paying attention to messages I send to the class. 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. I prefer that you contact me via email to [straub@econ.umd.edu](mailto:straub@econ.umd.edu), rather than through the ELMS/Canvas messaging system, though I will reply to either kind of message.

**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.

Students must bring their computer to class on any day when there is a computer lab, quiz or exam.

### **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. 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.

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.

**Schedule** (revisions, if any, will be announced in class, by email, and posted in a revised syllabus online)

The class will meet on 12 consecutive Wednesday nights from March 1<sup>st</sup> – May 17<sup>th</sup>.

- 3/1: Meet each other and introduce the course  
SfBE, Ch. 1: Data and Statistics  
SfBE, Ch. 2: Descriptive Statistics: Tabular and Graphical Display  
Computer lab: SfBE, Appendix 2.2: Using Excel for Tabular and Graphical Presentations
- 3/8: Computer lab: Acock, Ch.1: Getting Started with Stata  
TA Presentation on how to submit work electronically via ELMS  
SfBE, Ch. 3: Descriptive Statistics: Numerical Measures
- 3/15: SfBE, Ch. 4: Introduction to Probability  
Computer lab: Acock, Ch. 4: Basic Stata commands and Do-files
- 3/22: Computer lab: Acock, Ch. 4: Copying graphs and other Stata output into MS-Word  
Computer lab: Reading non-Stata datasets into Stata (Mitchell, Ch. 2)  
Computer lab: Acock, Ch. 5: Descriptive Analysis Using Stata
- 3/29: SfBE, Ch. 5: Discrete Probability Distributions  
SfBE, Ch. 6: Continuous Probability Distributions
- 4/5: SfBE, Ch. 7: Sampling and Sampling Distributions  
SfBE, Ch. 8: Interval Estimation
- 4/12: SfBE, Ch. 9: Hypothesis Tests  
SfBE, Ch. 10: Inference about Means and Proportions with Two Populations  
Computer lab: 2-sample t-tests (Stock and Watson, E3.1 – CPS wage gaps)
- 4/19: **Midterm Exam** (6:45-7:45)  
Discussion of Course Project (8:00-8:45)  
SfBE, Ch. 11: Inferences about Population Variances (8:30-9:45)
- 4/26: SfBE, Ch. 12: Comparing Multiple Proportions, Tests of Independence and Goodness of Fit  
SfBE, Ch. 13: Experimental Design and Analysis of Variance

Sunday 4/30: **Course Project Proposal due via email by 12:00 noon.**

Students will have written feedback on Course Project Proposal by 7:00 p.m. on Tuesday 5/2.

**Note:** Course Project Proposals, written feedback on proposals, and work on first drafts replace online discussions the week of 5/3..

- 5/3: SfBE, Ch. 14: Simple (aka Bivariate) Linear Regression  
Econometrics (as opposed to Statistics) Perspective on Bivariate Regression  
(Stock and Watson, Ch. 4)  
Computer lab: Acock, Ch. 8: Simple (Bivariate) Linear Regression with Stata  
Stock and Watson E4.2 and E5.2 (Teaching Ratings)

Sunday 5/7: **First draft of final course project due via email by 12:00 noon.**

Students will have written feedback on first draft of final course project by 7:00 p.m. on Tuesday, 5/9.

5/10: Introduction to Omitted Variable Bias and Multiple Regression (Stock and Watson, 6.1-6.4)  
Computer Lab: Teaching Ratings Empirical Exercise from 2<sup>nd</sup> edition of Stock and Watson

**Note:** Online discussions replaced the week of 5/10 by mandatory 20-minute in-person office visits with Dr. Straub to discuss course projects. Students are expected to share initial reactions to the written feedback on their first drafts, and when possible to show initial progress in following up on that feedback. Students' participation in these mandatory meetings will be graded. See discussion in the Graded Course Components section of this syllabus. Additional details will be posted on ELMS.

Saturday 5/13:

11:00-12:00: Optional Practice Exam (Paper and Pencil)

12:15-1:15: Optional Practice Exam (Stata)

1:30-3:00: Optional Review Session

Solutions for both parts of the practice exam will be posted on ELMS after the review session.

5/17: **Final Exam**

Saturday 5/20: **Final draft of course project due via email by 12:00 noon.**

### Graded Course Components

There are 5 graded components to the course. The 5 components and their relative weights in the course grade are: homework (20%), weekly online discussions (5%), midterm exam (20%) the final exam (30%) and the course project (25%).

#### *Homework (20 course points)*

Each week I will assign a few HW problems that correspond to the material covered that week in class. HW assignments will always be posted to the Assignments section of the course ELMS/Canvas page. I will usually post the HW assignments as MS-Word documents, MS-Excel files, and/or Stata do-files. Students are to edit the files I post, adding their answers. The edited files are what students will submit electronically via ELMS.

#### *Online Discussions (5 course points)*

After each class each week I will begin at least one discussion thread a discussion board on the course's ELMS/Canvas site. The online discussion will be open until 11:59 the following Thursday night. Student contributions to the discussions will be graded on a scale of 0 to 5 points. (Grading rubric will be posted on the class' ELMS/Canvas site.) People who do not contribute anything of merit will get zeros. People who make insightful and constructive contributions will get 5's. Grades between 0 and 5 are also possible. A grading rubric will be posted on the course's ELMS/Canvas page.

People who make inappropriate contributions in the online discussion forums will have to have an in-person discussion with me.

At the end of the semester, I will average each student's scores. Before calculating the average scores, I will throw out each student's 2 lowest online discussion scores.

#### *Midterm Exam (20 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.

#### *Final Exam (30 course points)*

I will prepare an exam that I think students should be able to solve in 2 hours, though students are welcome to use the entire class period from 6:45-9:30. 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.

The midterm and final exam are both open note, open book, open internet. Students can use whatever notes they like, including online resources. But students may not communicate with anyone except the proctor during the exam. Any student caught using a cell phone, email, or communicating with anyone in any way will receive a zero on the quiz or exam. Students are advised to make 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.

*Course Project (25 course points)*

Students are required to apply the skills they learn in the course to a small independent project. Students are encouraged to work in pairs on the project, though they may work individually if they prefer. Groups of 3 or larger will not be permitted. To complete the project students must collect some data, import and/or enter the data into Stata, organize and summarize the data appropriately, and perform some initial analysis of the data. The final draft of the course project will include a thorough descriptive analysis and a small simple regression analysis.

Students will submit the course project work in 4 installments (see the Schedule for due dates):

- Topic Proposal (2 points)
- Complete first draft of course project, including descriptive analysis (10 points)
- In-person meeting to discuss first draft feedback with me (3 points)
- Final draft of completed course project (10 points)

Additional details about all 4 components of the course project will be provided in class and on the course's ELMS/Canvas site.

Extra Credit, Course Evaluations and Final Course Letter Grades

*Extra Credit and 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. As an extra incentive for you to evaluate the course, I will offer an extra credit opportunity to the whole class if the course evaluation response rate exceeds 80%. I will not be able to see which students have evaluated the course, but I will be able to see the overall response rate.

If the response rate exceeds 80%, I will offer an extra credit opportunity worth up to 3 course points (~3% of your overall course grade). Partial credit is possible (e.g. 2.5 out of the 3 possible points).

I will post the extra credit question after the final exam. To receive the extra credit, students must submit their answer along with their final project. Students are expected to work out their own answers to the question individually. Students who have clearly copied from each other will receive no extra credit.

*Final Course Letter Grades*

At the end of the semester I will add up each student's course points. This will be a number between 0 and 100 (or 103 if there's an extra credit opportunity). I do not grade on a curve. Numerical course grades will be translated into letter grades as follows:

93-103	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

I might give an A+ to a student or two at the very top of the class' grade distribution.

## **Other Standard Policies for the Program and the University of Maryland**

**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.

**Contact Hours:** Three credit courses at the University of Maryland require a minimum amount of contact between instructors and students. Our courses' 12 weekly 3-hour meetings only satisfy 80% of the university's contact requirement. The other 20% is satisfied by weekly mandatory and graded online contact. In principle, the contact hours requirement could be satisfied by scheduling 3 additional 150-minute meetings per term, or 6 additional 75-minute meetings, or 10 additional 45-minute meetings. But in practice the contact hours requirement is satisfied by the weekly online discussions. The weekly online discussions are a more flexible way to ensure that our program's courses in DC provide the same level of student-instructor contact as the traditional 15-week, face-to-face, version of the same course when it is taught on campus in College Park.

**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. Students who take 2 courses per quarter in our program complete 8 courses per year. So taking 2 courses per quarter in our program is equivalent to 133% of a full-time load ( $8/6 = 1.33$ ).

**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 get yourself caught up in the course. 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). Since our program is an evening program in downtown Washington, DC, rather than a day program in College Park, we do not always cancel classes on the same days as the College Park campus. The program director will always 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.

**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.

**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 building's 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 guard's desk by dialing (202) 328-5158. If the security guard happens to be away from his or her desk when you arrive, you can pick up the black phone to the right of the door at 1400 16<sup>th</sup> Street. 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. The password is "Drawbridge". When you tell them the password, they will be able to unlock the door for you.