Econometrics: Econ 345-002
Robinson Hall, Room A105; 7:20pm - 10:00pm (Wednesday)

Instructor: Professor David Eil, deil@gmu.edu

Office Hours: Wednesdays, 4:30-6:00, Starbucks Coffee near Rappahannock River Parking Deck, or by appointment. You can also email me any time and I will respond within 12 hours.

Course Description: Economic theories start with assumptions and progress towards testable hypotheses. The testable part is important - if theories can't be forced to meet into contact with the real world, they are of little use. But testing theories of economic behavior is not easy - we don't often have randomized control trials as in hard sciences. We instead have to rely on "observational" data with messy identification. That is, it's hard to tell what the causal relationship is between two things that happen together. Most of econometrics is concerned with uncovering this relationship, and synthesizing randomized control trials where real ones don't or can't exist. This course is designed to get you thinking about these problems, teach you the most common and most powerful methods in this field, and help you identify when you are being fed statistical analysis that doesn't properly identify a causal relationship.

Prequisite: An understanding of basic statistics.

Required Materials:

Angrist and Pishke, *Mostly Harmless Econometrics,* ISBN 0691220358

Wooldridge, *Introductory Econometrics*, ISBN 1111531048

Other material will be available on Blackboard.

Software:

You must purchase Stata for this class. I will assign applications using Stata in this class. For the purposes of this class, the six-month license for "small" Stata will be sufficient ($35). If you plan to use econometrics again after this semester, I recommend a Stata 13 perpetual license.

http://www.stata.com/order/new/edu/gradplans/campus-gradplan/

Grading: You will be graded on one of the following two point systems, whichever gives you the highest grade:

Final	40%	60%
Midterm	30%	10%
Assignments	20%	20%
Class participation	10%	10%

That is, if the midterm doesn't go well for you, you have a chance you redeem yourself on the final. My hope is that everyone will earn an A. If everyone ends up with above 90% of the points available, I will happily give out all As. That said, this material is challenging, so I may curve the final grades to prevent the grade distribution from being too low. I will give you an F only if you really earn it.

Assignments: You will have six assignments. I will drop the lowest grade, but will accept no excuses for missing or late assignments. Assignments and their due dates will be posted on Blackboard. The syllabus will also be updated with due dates. **Assignments are due at the beginning of class on the due date**, either in my inbox as a .pdf or Word file, as a clear picture of your written work, or as a physical copy put on my desk. **I do not accept late assignments.**

Exams: The midterm is on October 19th; the final is on Dec 14th at 7:30pm. There will be no makeup exams.

Class Participation: I expect you to come to class ready to engage in classroom discussion. I don't expect you to be right every time I ask you a question. Everyone will make mistakes at some point during class. But I expect you to try your best, and to work towards the correct answer even if you're wrong the first time. What makes a good student - and even a good researcher - is not that they're right the first time they try a new problem. It's that they keep trying until they get it right. You should help your peers - or me, if you think I need it - towards a better answer if you can, but always respectfully.

Study Strategies: Since we only meet once a week, it is imperative that you study the material between class meetings. This includes reviewing readings and class notes, and especially doing problems. The assignments are meant to be a minimum, not a maximum. If there's a subject you don't feel you understand very well, do extra problems out of the book. I'm happy to give you extra problems if you can't find them on your own.

Students with Disabilities: If you have a learning or physical difference that may affect your academic work, you will need to furnish appropriate documentation to the Office of Disability Services. If you qualify for accommodation, the ODS staff will give you a form detailing appropriate accommodations for your instructor. In addition to providing your professors with the appropriate form, please take the initiative to discuss accommodation with them at the beginning of the semester and as needed during the term. Because of the range of learning differences, faculty members need to learn from you the most effective ways to assist you. If you have contacted the Office of Disability Services and are waiting to hear from a counselor, please tell me.

Honor Code: George Mason University is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. What does academic integrity mean in this course? Essentially this:

(1) When you are responsible for a task, you will perform that task. Exams are to be done independently. Any interaction with others during exams is in violation of the honor code.

(2) When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form.

(3) Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions.

Calendar

Week 1	First day of class; Course review; What is Econometrics? Stats review
Weeks 2-3	Review of probability and stats (*IE* Appendices A,B,C; *MHE* Ch 1&2)
Weeks 4-5	Bivariate regression (*IE* Ch 1-2; *MHE* Ch 3.1-3.1.3, Ch 3.2-3.2.2; 3.4.3)
Week 6	Multiple regression (*IE* Ch 3-4; *MHE* 3.1.4)
Week 7	Non-linear regression (*IE* 6; *MHE* 3.3)
Week 8	**Midterm (October 19)**
Week 9	Regression applications (TBA)
Week 10	Panel Data (*IE* 13.1; *MHE* 5.1)
Week 11	Dummy Variables (*IE* 7)
Week 12	Difference in Difference (*IE* 13.2; *MHE* 5.2)
Week 13	Giving Thanks For Exogenous Variation in Data
Week 14	Instrumental Variables (*IE* 15; *MHE* 4.1-4.2; 4.6.1)
Week 15	Inference Problems/Review/Regression Discontinuity (*IE* 8; *MHE* 3.4.1)
12/14	**Final Exam**