Case Western Reserve University
Department of Economics

Economics 326
Econometrics

Contact Information
> Prof. Justin Gallagher
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Lecture Logistics

Class:
> Mon. and Weds 3:20 – 4:35
> PBL Room 07

Lab:
> Mon. 4:50-5:40
> PBL 07

Extra Credit
(Applied to Home Work Assignments):
- **Tues Feb 21** Movie Night (extra credit), 7-9 PM, PBL 106
- Occasionally researchers from other universities are invited to CWRU by the economics department to present ongoing research projects in a lecture/seminar format. Extra credit for attending the lecture. Research presentation dates for the Spring (time and room TBD) include:
  - **Friday Jan 20**, James Feigenbaum, Boston University
  - **Friday Feb 24**, Ariel Dora Stern, Harvard
  - **Friday Mar 3**, Jenny Aker, Tufts University
  - **Friday Apr 21**, Jon Williams, University of North Carolina

Course Description
Econometrics uses statistical methods to estimate economic relationships. In economics we are often encountered with situations where we would like to estimate the relationship between two variables while holding other factors constant. Econometric methods are important precisely because they can allow us to isolate the relationship between two variables. This class will cover the standard multiple regression model. In so doing, we will review the assumptions needed for this model to work as intended. Towards the end of the course, we will also review more advanced techniques that are commonly used in applied empirical work.

Extra Help
Econometrics is a tricky subject. I expect that even the best prepared students will struggle with the material at some point during the course. I encourage everyone to attend office hours and to ask questions on the course material and the problem sets.

- My office hours this semester are: **Weds. 4:45-5:45 PM and Tues. 3-4 PM**

There are 2 TAs for this class: Thomas Nolan and Ini-Abasi Umosen. The TAs will hold drop-in office hours each week in our classroom and lead exam review sessions before each exam.

- TA drop in hours (PBL 07): **Sun 3-5PM** (except Mar 12, Mar 19, Apr 16)
- TA exam review (PBL 07): **Feb 7, Mar 21, and Apr 30 from 7-9PM**

Also, don't forget that you can also take advantage of Peer Tutoring (it's free!) through ESS.

- Go here to schedule tutoring: http://students.case.edu/education/tutoring/peer/

Email Policy
I will do my best to respond to all emails within 24 hours. Please don't send the same email 2x unless it has been more than one day. Please put: "Econ 326" in the subject line. Keep in mind that typing out a detailed response to a problem set (or lecture) question can take a long time and is generally difficult to read over email anyway. I will defer most substantive questions to office hours or before/after class. Email is best for logistical questions.

Grading

Test 1:	15%
Test 2:	20%
Test 3:	15%
<u>Test subtotal</u>:	50%
8 problem sets (of 9):	20%
Research Paper:	20%
Reading Quizzes & Class Attentiveness:	10%

Tests
All testing will be done in class and will only explicitly cover test the material since the last test. That said, since econometrics is a cumulative subject, each test will build upon the material earlier in the course. *Exams will not cover Stata programming commands*. If you miss the day of the test you will receive a zero for that test. The only exceptions are an illness or a death in the family (in both cases you will need documentation).

Please be sure to talk to me before/after class, or during office hours if you require additional testing accommodations. Don't wait until the day of the exam. We will be sure to arrange a suitable accommodation.

Test re-grading: If I have miscounted points on a test please notify me immediately and I will fix the grade. If you think that I have incorrectly scored an answer, submit a complaint in writing (a specific, detailed email is OK) to me indicating the question and your concern. I will re-grade the entire test. You should keep in mind that this might decrease your final grade.

Final grade test re-weighting: Sometimes we have a bad day. This goes for taking tests too. Recognizing that there may be a test that just didn't go well the final test portion of your final grade (worth 50% of final grade) will be calculated in a way that helps take this into account. After the 3rd test your test portion of your grade will be re-weighted so that the test you did best on is increased by 5 percentage points and the test you did worst on is decreased by 5 percentage points. For example, if your worst test was the 1st test and your best was the 3rd test then the first test will count for 10% of your grade (instead of 15%) and the 3rd test will count for 20% (instead of 15%).

Problem Sets
The problem sets are designed to review lecture material and prepare you for the tests. I feel strongly that econometrics is a subject that is best learned by getting your hands dirty. You can anticipate that each problem set will have problems from the book as well as problems where you will be asked to work with data using the statistical program Stata. When there are Stata questions you should print out and turn in either your .do or .log file with your answers.

Problem sets will be collected at the start of class on the day which they are due. I will not accept late problem sets, nor will I accept electronically submitted problem sets. If you know in advance that you must miss a class the day a problem set is due then please drop off the problem set at my office before the scheduled class time, or have a classmate turn in the problem set for you. There are 9 problem sets, but you will be able to drop your lowest scoring problem set. That is: The 8 highest problem set grades will be calculated towards your final grade. The same testing re-grade policy applies to problem sets.

You are welcomed and encouraged to work in groups (e.g. 2-4 people) when completing the problem sets. However, each member of the group must turn in their *own copy* of the problem set with the answers written in their own words. **If you work in a group you must also cite your other group members by listing their names under your own (i.e. "group members: …")**. Important note: If you do not cite group members then any similarities between your

answers and another student's answers will be considered cheating and disciplinary action will be taken according to CWRU Academic Integrity Standards.

Research Paper

The objective of the research paper is to give you an opportunity to apply what you have learned in this class to a question of interest to you. The choice of a research question is entirely up to you. However, an important consideration is that you will need to have good data in order to run an econometric analysis.

The grading for the Final Project includes three parts: First, meeting the deadlines for 2 required milestones described in the table below (20%). Second, a five-minute Powerpoint presentation to the class about your topic, including initial regression results (30%). Third, the final paper (50%). I will not accept late milestones and no credit will be given for submitting a late research paper. (The links to the Milestones will be submitted via Blackboard and will disappear immediately after the due date).

The term paper should be 8-10 pages in length, plus at least 2 figures and/or tables. You must create these figures and tables (do not reproduce from another source). You should format your tables instead of simply pasting Stata output into Microsoft Word. Good writing and clear economic reasoning are expected. More details and guidelines about the paper and paper proposal will be provided later in the semester.

Finally, the best Econ 326 paper (from combined Fall and Spring semesters) will be awarded a cash prize at the end of the year Economics Department awards ceremony. You have to write the paper anyways, so why not earn some money?! Perhaps even more important: "Best Econometrics Paper Award" will look really good on your resume.

Percent of Final Paper Grade	Assignment	Due Date
10%	Milestone 1: Research question and data set description	Apr 10 (1 PM)
10%	Milestone 2: Formal paper proposal and printed Stata summary of dataset	Apr 17 (1 PM)
30%	Milestone 3: 5-Minute (taped) presentation	Apr 24 (1 PM)
50%	Research paper due	May 8 (11:59 PM)

Reading Quizzes and Class Attentiveness

As you will see, the course includes material from a text book and a number of additional readings (published economic journal articles). The articles are examples of how economists have used the econometric techniques we will learn in this class to analyze a variety of questions.

You should plan on reading the journal articles. Doing so will positively affect your problem set, test, and class attentiveness grades. The articles will also give you an idea of how to write your term papers. There is a standard structure used for all economic journal articles.

As extra incentive to read the papers there will be between 0-8 "pop quizzes" during the semester at the start of class on the day that a paper reading is assigned. The quizzes will be very short (about 5 minutes). If you are late to class, or missing from class on the day of a quiz you will receive a zero for that quiz. The lowest scoring quiz will be dropped and not included in calculating your final quiz grade. The purpose of the quizzes is to make sure that you read the article and comprehended the major points (e.g. motivation, thesis question, data, main model, main findings). Some of the articles will include material that is "above" the level of this class or cover topics that we have yet to get to in the class.

Class Blackboard Site

We will be using Blackboard. All assignment grades will be entered throughout the semester on Blackboard. The following materials will be posted:

- Problem sets (including data files, copies of the book questions, and suggested answers—after the due date). All problem sets must be turned in during class at the beginning of class (or dropped off in my office before class).
- Templates of lecture notes (i.e. partial lecture notes).
- Old tests to review.
- A document with links to the class readings.
- Lab assignments and notes.

Textbook and Readings

Required Text:
    Jeffrey M. Wooldridge (2009). *Introductory Econometrics A Modern Approach (4e).* Mason, OH: South-Western.
- Note that there is a newer 5th edition available, but you should feel free to purchase the 4th edition.

<u>Articles</u>:
Links to articles will be posted on Blackboard.
- I suggest printing out all 8 articles and keeping them in a 3-ring binder. You are responsible for the material in the articles for classroom discussion, pop quizzes, and the 3 exams.

<u>Statistical software:</u>
- Stata is the statistical software used in the class. Stata version 14 is installed on all of the computers in our classroom. You are not required to purchase the software.

- You can also access Stata remotely using your own computer: https://intranet.weatherhead.case.edu/help/lab/virtual-lab/

- Finally, the software is available for purchase at: http://www.stata.com/order/new/edu/gradplans/student-pricing/
The 6-month student license costs $75. "Stata/IC" is the version of the software that you will need for the class (don't purchase "small Stata").

Academic Integrity
All students in this course are expected to adhere to university standards of academic integrity. Cheating, plagiarism, misrepresentation, and other forms of academic dishonesty will not be tolerated. This includes, but is not limited to: consulting with another person during an exam, turning in written work that was prepared by someone other than you, making minor modifications to the work of someone else and turning it in as your own, or engaging in misrepresentation in seeking a postponement or extension. Ignorance will not be permitted as an excuse. If you are not sure whether something you plan to submit would be considered either cheating or plagiarism, it is <u>your</u> responsibility to ask for clarification.

More comments on academic integrity:
- Cheating is a disservice to those classmates who study hard and play by the rules.
- I am confident that most students wouldn't cheat on an exam regardless of the circumstances. However, I am an economist and also recognize that there are some students that may be tempted to cheat if it appears that the benefit outweighs the cost.
- In case you have any doubts, we will strictly and fully enforce the above Academic Integrity Standards in this course. What this means is that <u>all</u> suspected cases of cheating on exams and homework will be forwarded directly to the Dean's Office. This is the case regardless of the "amount" of cheating.
- To further dissuade academic dishonesty we will be taking a number of precautions that will increase the likelihood of catching anyone who cheats including some measures that will not be obvious unless you happen to be caught.