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George Mason University • Economics 535

**APPLIED ECONOMETRICS**

Spring 2021 • Asynchronous Online

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Office hours by appointment.

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**Course Description**

This course will introduce you to the use of multiple regression analysis and other tools needed to analyze data in the social sciences. The emphasis is on empirical applications. There are two main objectives of the course: 1) To provide you with the ability to analyze critically the empirical analysis done by others at a level sufficient to make sound decisions based on the analysis. 2) To provide you with the skills necessary to perform empirical analysis on your own.

**Readings**

You will need one book for the class: J. Stock and M. Watson. *Introduction to Econometrics*, Fourth edition (third updated edition works as well). Pearson.

Other readings will be made available electronically on BlackBoard.

**Course requirements**

The course grade will be determined using the following weights: a) Problem sets: 33%. b) Mid-term exam: 33%. c) Final exam: 33%.

**Lectures:**

The lectures will be asynchronous, i.e. you will not have to be online on a certain day/time. I will post each week's lecture on **Mondays at 10am Eastern Time**.

**Group Office Hours:**

I will be on **Zoom between 8pm and 9pm every Wednesday**. You certainly do not have to join, but I encourage you to do so if you can, and if there are materials from the lecture posted that week or from previous lectures that you would like to discuss further, or if you have logistical questions about the course. To join please use this link: <https://gmu.zoom.us/j/7613019563>. If you want to schedule individual office hours (which will also be held on Zoom) on other days/times, please send me an email.

**Quizzes**

When I post the lectures I will also post a short quiz about the materials for that week. This is for learning purposes only, and you should not submit your answers. The correct answers will be given at the end of the slide deck for each lesson.

### **Problem sets**

There will be four problem sets. To receive credit, the problem sets must be submitted in one file via email to me (jmollers@gmu.edu), and to our TA Moumita Roy (mroy7@gmu.edu) **before midnight on the day that the problem set is due.** I will unfortunately not be able to give credit for late problem sets. You may work on the problem sets in small groups but you must write up your answers individually, in your own words. Put the names of your study group member(s) on your problem set. Duplicate answers will receive no credit.

### **Stata**

You will be required to use Stata for the problem sets (the Stata IC version is sufficient for this course): <http://www.stata.com/order/new/edu/gradplans/student-pricing/>

### **Exams**

There will be two exams. The mid-term exam will cover the material that we go through until (and including) Week 6. The final exam covers the whole course. **The mid-term exam will take place on Monday March 8 and the final exam will take place on Monday April 26.** I will post the exam on Blackboard (and email it to you) at 7pm and you will need to return it to me and to our TA Moumita Roy by email at the latest at 10pm. You can use your books and notes when completing the exam, but please note that the exam is individual and you are not allowed to work together.

<b>Date</b>	<b>Topic</b>	<b>Readings (chapters in Stock and Watson)</b>	<b>Assignments due</b>
Week 1: Jan 25-31	Introduction. Review of statistics, part 1.	1-3 (focus: 1, 2.1-2.3, 2.5-2.6, 3.1-3.5, 3.7)	
Week 2: Feb 1-7	Review of statistics, part 2. Introduction to Stata.	1-3 (focus: 1, 2.1-2.3, 2.5-2.6, 3.1-3.5, 3.7)	
Week 3: Feb 8-14	Bivariate regression, part 1. A second look at Stata.	4 (focus: 4.1-4.3, 4.6) (17, if you want more)	PS1 (due Mon Feb 8)
Week 4: Feb 15-21	Bivariate regression, part 2.	5 (focus: 5.1-5.4, 5.7) (17, if you want more)	
Week 5: Feb 22-28	Multivariate regression, part 1.	6 (focus: 6.1-6.4, 6.7-6.8) (18, if you want more)	
Week 6: Mar 1-7	Multivariate regression, part 2.	7, 9 (focus: 7.1-7.2, 7.5, 9.1-9.2) (18, if you want more)	PS2 (due Mon Mar 1)
<i>Midterm exam:</i> <i>March 8</i>	<i>Midterm exam (7-10pm)</i>		
Week 7: Mar 15-21	Interaction variables. Nonlinear regressions: quadratics, logs.	8 (focus: 8.1-8.4)	
Week 8: Mar 22-28	Binary dependent variables.	11 (focus: 11.1-11.3)	PS3 (due Mon Mar 22)
Week 9: Mar 29 – Apr 4	IV regression.	12 (focus: 12.1, 12.3-12.5)	
Week 10: Apr 5-10	Experiments, quasi-experiments and diff-in-diff.	13 (focus: 13.1-13.5)	
Week 11: Apr 12-18	Quasi-experiments cont.: Regression discontinuity.	13 (focus: 13.1-13.5)	PS4 (due Mon Apr 12)
Week 12: Apr 19-25	Panel data and fixed effects. Exam preparation	10.1-10.4, 10.6	
<i>Final exam:</i> <i>Apr 26</i>	<i>Final exam (7-10pm)</i>		

### **Academic Integrity**

The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please ask me.

### **Disability Accommodation**

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474, <http://ods.gmu.edu>. All academic accommodations must be arranged through the ODS.