University of International Business and Economics

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International Summer School

ECON 303 Econometrics

Term: May 25– June 25, 2020
Instructor: Neal Rappaport
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Class Hours: Monday through Thursday, 120 minutes each day (2,400 minutes in total)
Office Hours: TBD
Discussion session: 2 hours each week

Total Contact Hours: 64 contact hours (45 minutes each, 48 hours in total)
Credit: 4 units

Course Description:

Econometrics provides a link between theoretical economic models and "real world" data. Econometrics is a required part of the "toolbox" of an undergraduate economics education and for understanding applied economics courses and research. To learn econometrics, you must actually do econometrics. So, the focus on this course will be provide a theoretical foundation that allows you to do econometric analysis and to understand econometric analysis published in a variety of journals.

Course Goals:

There are several goals in this course. The first is gain an understanding of the statistical theory that underlies econometrics. The second is to be able to learn to use data analytical tools that allow you to formulate and then estimate an econometric model. The third goal is to gain the ability to interpret econometric results and draw statistical inference from these results.

Course Prerequisites:

Microeconomics at the Intermediate level (typically a 200 or 300 course designation). Macroeconomics at the principles level (100 level). Differential Calculus and a Probability and Statistics course.

Required Textbook:

Jeffrey M. Wooldridge, *Introductory Econometrics, A Modern Approach, 7th Edition*; copyright 2020, Cengage, ISBN: 978-1-33-755886-0. Note: The 6th Edition is acceptable but if you use the older version, you are responsible for ensuring that you have access to any material or problems that have changed across editions.

Required Software Package:

Excel has functions to allow for basic econometric analysis. We will be using Excel for the course but for analysis beyond the basics, you will need access to a more powerful package like Stata or R. My recommendation is that you familiarize yourself with one of these packages when you get back to your "home" university if you are continuing your studies in econometrics.
(Note: Other spreadsheets besides Excel have similar functions but may have different syntax. You are welcome to use these (e.g. Google Sheets, Numbers, et cetera) but, in class, the material will be presented in Excel.

Grading Policy:

Grades will be based on the following (1000 points—i.e. 25% is 250 points):

- Exams: Two Exams, each worth **25% of final grade**; Exam 1 on Monday, 7 June; Exam 2 on Wednesday, 23 June; **(total 50% of course; 500 points)**
- Homework, **10% of the grade**.
    - Homework grading: If you try to answer—hopefully successfully—the assigned problem or problems—you will receive credit for that assignment. Trying and turning in all the homework assignments (on time) will earn you the full 10%.
        - Late homework and missing assignments will decrease your homework grade.
    - Homework is to be turned in individually. You are encouraged to work problems with classmates, but you must turn in your own assignment.
- Project/Paper: **40% of the grade. Project/Paper due at the start of class on Monday 22 June. No late papers accepted unless there are extenuating circumstances.**
    - For this project, you are to formulate an econometric model, find the data, estimate the model, and interpret the results. The paper should be no more than 3 pages including your results, but not including your cover page. (You should be prepared to provide your actual computer results should I ask for them as backup to your paper.)
        - Paper format is
            - Cover page with name, title and certification of individual work
            - One paragraph introduction
            - One or two paragraphs about your model and why it is important
            - One paragraph about the source of your data
            - One paragraph detailing your testable hypotheses
            - Two or three paragraphs interpreting your results
                - Your results need to be presented in a table or tables at the end of the paper
            - One or two paragraphs as a conclusion
        - Paper is to be written in Word, Pages, et cetera and **printed out**. Paper is due at the start of the 22 June class.
        - The model must be more complex than simple linear regression and must include testable hypothesis or hypotheses.

- Please tell me your proposed topic in a one paragraph submission (**printed out**) at the start of the 27 May class. The paragraph should clearly state the subject of the project and your reason for choosing this topic.
- The project is individual work. You can consult with the TA or with me.
- Preliminary presentation of paper—in-progress review using slides (e.g. PowerPoint; 5-10 minutes); Wednesday, 10 June.
- Final presentation of paper results—using slides (e.g. PowerPoint; 10-15 minutes); Wednesday, 24 June.

Grading Scale:

Assignments and examinations will be graded according to the following grade scale:

A	90-100	**C+**	72-74
A-	85-89	**C**	68-71
B+	82-84	**C-**	64-67
B	78-81	**D**	60-63
B-	75-77	**F**	below 60

Class Expectations:

Students are expected to:

- ✧ Attend all classes and be responsible for all material covered in class and otherwise assigned. Any unexcused absence may impact a student's grade.
- ✧ Adhere to standards of academic integrity appropriate for UIBE and your home university.
- ✧ Not text, phone, play games nor engage in computer activities unrelated to class during class time.
- ✧ Complete the day's required reading before class and turn in assignments on time.
- ✧ Review the previous day's notes before class; make notes about questions you have about the previous class or the day's reading.
- ✧ Participate in class discussions.

Econometrics is a difficult and important aspect of the undergraduate economics curriculum and requires your dedication to learning the material.

Attendance Policy:

Summer school is very intense and to be successful, students need to attend every class. Attendance will be recorded. Occasionally, due to illness or other unavoidable circumstance, a student may need to miss a class. Any unexcused absence may impact on the student's grade. Moreover, UIBE policy is that a student who has missed more than one-third of a course will fail the course.

Course Schedule:

The planned schedule below may be modified to suit the interests or abilities of the enrolled students or to take advantage of special opportunities or events that may arise during the term.

Day and Date	Topic(s)	Wooldridge Text Readings	Problems (note: additions and/or changes may be made in class; denoted by "P") **Problems are due at the start of the next class period.**
Day 1, Monday, 25 May	Introduction to Econometrics and Economic Data and Introduction to Excel (data analysis)	Chapter 1	Text Problem 1; Computer Exercises (to be assigned)
Day 2, Tuesday, 26 May	Excel Hands-On		Excel Quiz to be worked in class.
Day 3, Wednesday, 27 May	The Simple Regression Model and Introduction to Empirical Projects **Paragraph on paper topic due**	Chapter 2 and Chapter 19	Chapter 2; P: 1, 4, 8, 10
Day 4, Thursday, 28 May	Multiple Regression Analysis: Estimation	Chapter 3	P: 1, 2, 3, 10, 15
Day 5, Monday, 1 June	Multiple Regression Analysis: Inference	Chapter 4	
Day 6, Tuesday, 2 June	Inference and Hypothesis Testing and "catch up" day	Chapter 4	P: 1, 2,3, 5, 11
Day 7, Wednesday, 3 June	A bit of theory and choosing functional forms	Chapter 5 (skim); Chapter 6	Chapter 6; P: 1, 2, 3, 7
Day 8, Thursday, 4 June	Multiple Regression Analysis with Qualitative Information (dummy variables and interaction terms)	Chapter 7	P: 1, 2, 5, 11
Day 9, Monday, 8 June	**Exam 1**		

Day 10, Tuesday, 9 June	Heteroskedasticity	Chapter 8	P: 1, 2, 5, 6
Day 11, Wednesday, 10 June	Exam Review; **Preliminary Presentation of Paper** Specification and Data Problems; Autocorrelation	Chapter 9	P: 1, 3, 8, 9
Day 12, Thursday, 11 June	Simple Panel Data Methods Advanced Panel Data Methods	Chapter 13 Chapter 14	Chapter 13 P: 2, 6 Chapter 14 P: 1, 4
Day 13, Monday, 15 June	Basic Time Series, Serial Correlation Issues	Chapter 10 Chapter 12 (12.1, 12.4)	Chapter 10 P: 1, 2, 3 Chapter 12 P: 1
Day 14, Tuesday, 16 June	Limited Dependent Variables	Chapter 17	P: 1, 2
Day 15, Wednesday, 17 June	Instrumental Variables and Two-Stage Least Squares	Chapter 15	
Day 16, Thursday, 18 June	Instrumental Variables and Two-Stage Least Squares (continued)	Chapter 15	P: 1, 2, 3, 5
Day 17, Monday, 22 June	Review and Catch Up		**Paper Due**
Day 18, Tuesday, 23 June	**Exam 2**		
Day 19, Wednesday, 24 June	**Paper Presentations**		
Day 20, Thursday, 25 June	Course Review and Summary		