

Economics 385

Econometrics

Fall 2016

M.W. 8:20AM-9:40AM in PAC 107

Professor: Nazire Özkan

Office: PAC 221

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Phone: 860-685-2504

Office Hours: Mondays and Wednesdays 1:45 - 2:45 pm or by appointment.

TA: Jianna Xiong [jxiong@wesleyan.edu]

TA Sessions: 6:30pm-8:30pm on Saturdays in PAC 107.

General Course Information

Course Description

Purpose: Econometrics is the study of statistical techniques for analyzing economic data. The course reviews multiple regression and develops several more advanced estimation techniques. Students work on individual research projects and learn to use econometric software.

Class Materials

Readings: There is one required text: Jeffrey Wooldridge, *Introductory Econometrics: A Modern Approach*, 6th edition, ISBN 978-1-111-53104-1. In addition, there is one highly recommended text: Peter Kennedy, *A Guide to Econometrics*, 6th edition, ISBN 978-1-4051-8257-7. Chapter numbers in the course schedule refer to these texts, denoted respectively as [W] and [K].¹ All other course readings will be made available through the course moodle. Exams are open books and open notes. You will not be allowed to use an e-book during the exam (only hard copies).

Lectures: You are responsible for all assigned readings whether or not the material is covered explicitly in class. In the lectures I will focus on the most important topics as well as on those that are more difficult to comprehend. Please ask questions as they arise during lectures. I encourage you to comment on the level, pace, and content of the course as it

¹Google books has a mostly complete version of the 5th edition of Kennedy available for free. Two key differences between the 5th and 6th edition: (a) page numbers don't carry over for any chapter; (b) chapters 9 and 23 are brand new. If the syllabus lists one of chapters 10-22, just read chapter 9-21 in the older version instead. In addition, there are also small changes throughout the text.

progresses. In particular, feel free to contact me by e-mail.

Computer work: Most assignments as well as the research project will require use of STATA, which is available in the data labs on campus. STATA is available on all computers in the QAC and PAC labs. Four STATA workshops will be offered; each module will be offered twice.

Computer Sessions (outside of regular class schedule): Manolis Kaparakis, the Director of the Centers for Advanced Computing, will hold the following instructional sessions on the usage of STATA.

Session 1: Introduction to STATA I	Wed. 9/7, OR Thu. 9/8, 3:00-4:30, ALLB 204.
Session 2: Introduction to STATA II	Thu. 9/22, OR Friday 9/23, 3-4:30, ALLB 204.
Session 3: Time Series	Wed. 11/2, OR Thu 11/3, 3:00-4:30, ALLB 204.
Session 4: Panel Data	Wed. 11/16, OR Thu 11/17, 3:00-4:30, ALLB 204.

If you need additional help with STATA, the QAC offers walk-in tutoring hours where they assist you with STATA questions on a first-come first-served basis. Tutors are available in ALLB 108 from 3:00-5:30pm Monday through Friday, 7:00-10:30pm Monday through Thursday, and 6:00-10:30pm on Sunday. The schedule of tutors can be found at [http : //www.wesleyan.edu/qac/tutoring.html](http://www.wesleyan.edu/qac/tutoring.html).

Coursework and Grades

There will be ten homework assignments, one in-class test, a project, and a final exam. The weights of the different course components in your class grade are:

Assignments and Credit:

Attendance and participation	10%
Problem Sets (10)	10%
Research Paper:	
–Proposal	5%
–Final paper	25%
Midterm Exam	25%
Final Exam	25%
Total	100%

Attendance and Class Participation: Class attendance is NOT optional. You are expected to complete all assigned readings before class. I will use our class-time to focus on the most important topics as well as on those that are more difficult to comprehend.

I will check your attendance sporadically. The default attendance and participation score is 8 points. The max is 10 points and the min is 0 points. If you miss a class, you will lose 1 point.

Excessive absences, late arrivals or early departures will lead to a lower class participation

grade. If you are texting or using a computer at any time during a class, I'll mark you absent for that day even if you talk a lot during that day's class.² If you know that you will have to be late and/or leave early, please let me know in advance.

The attendance and participation score also goes up if you actively participate in class. If you ask insightful questions as well as give answers to my questions during a lecture you will earn 1 point for that lecture.

Problem Sets

Problem sets are assigned regularly (almost every week). They have several purposes: to review and extend concepts from lecture or the notes, to introduce related topics not covered in lecture, and to provide feedback on your comprehension of the material to date. *Note: problem sets will occasionally cover material before it is covered in class.* There will be eleven problem sets and your ten best problem set grades will be counted towards your course grade.

There will be **ten** problem sets. Do not ask the TA nor me whether your answer is correct before you turn in your problem set. We will not precheck your solutions. Explain the thought process for your answer or where you are stuck, and we will help you from there.

Problem sets will be due at 1pm on Tuesdays, and should be submitted via the Econ 385 slot in the departmental locked box. As the solutions to the problem sets will be posted promptly, late problem sets will receive a maximum grade of check-minus. Problem sets cannot be submitted directly to the course grader and receive credit unless we have made special one-off arrangements (which are not common).

Grading will be on a 0-3 scale. *A seriously deficient problem set will receive zero credit.* The rough rubric for determining grades: all questions answered correctly or all questions answered using right strategies (but with possible computational errors) = 3 (a check-plus); some questions skipped or many questions answered incorrectly = 1 (a check-minus); and almost everything in between = 2 (a check). Late assignments will only get a check-minus irrespective of quality as solutions will be available on line as soon as the deadline for submission passes.

Up to two people may cooperate on each problem set; when students submit joint problem sets all students will get the same grade. The purpose of group work is to facilitate your learning by discussion about the materials with your classmates. Do not free ride. It hurts you and also your group member. All assignments will be returned via the student boxes in the alcove next to the economics department office. (When students cooperate on an assignment, the assignment will be returned to the box corresponding to the first student's surname.) *Please do not list any students' name on the problem sets; instead, please put students' WesIDs.*

²That said, if you will routinely use a computer for note-taking, that is different and will be okay.

Research Paper

A major goal of this course is to produce a well-written, carefully constructed, original piece of econometric research. The analysis employed in the paper should be more sophisticated than what would be acceptable for Econ 300, using techniques drawn from this course. Excellent papers will take a creative approach towards an interesting topic, and may form the first part of an honors thesis.

Students who want to write a paper related to another elective should speak with both me and the other professor as early as possible to obtain our permission.

Writing a paper is a time-consuming task. As the research paper is due at the last day of the classes (December 9th), it is very important to choose a topic that is feasible within the time limit. Hence, you should also submit a proposal. I will try to give you my feedback on your proposal as soon as possible, and you can start working on the paper after getting my feedback. The deadline for the proposal is October 21st. However, you can submit the proposal anytime prior to the deadline if you want to have more time to write the paper.

Your paper will be an in-depth exploration of any topic in empirical economics. The final paper will be about 15 pages long (not including references, appendices or exhibits), double-spaced, 12 point font, with the standard 1.25-inch margins (the Microsoft default setting). (Note: both the proposal and the final paper should follow this formatting.) Excessive length is generally detrimental to the quality of your work. As a result, papers cannot be longer than 20 pages, not including references, figures, tables, etc. At the low end: 14 pages is probably the minimum.

The proposal will be submitted electronically to moodle (to the turnitin assignments section), and marked-up copies of your proposals will be returned via turnitin or email. Hard copies of the final paper should be submitted to the locked box by the appropriate deadlines. *It is not necessary to also email me any of these files.*

The project has two stages: a proposal and a final submission.

Proposal (2-3 pages, 1.25-inch margins, 12pt font size, double spacing): Due 1 pm on October 21st, 2016.

A 2-3 page prospectus is to be uploaded to a dropbox in the course moodle no later than 1pm on Friday, October 21st. It should include a brief discussion of your topic, related citations (from academic research)³, data description and summary, and some discussion of the proposed econometric techniques. *Ideally, all relevant data will have been collected before this assignment is due.* (Note: do not print out your data set; I am simply seeking evidence that you can implement your proposed project.) This process will provide a starting point of your work and it will also help you get an idea on the structure of economics papers. Finally, provide sample statistics (number of observations, mean, variance, etc.) of the dependent

³Newspaper or magazine articles are not appropriate references; wikipedia and its ilk are unacceptable.

variable for your main empirical model model.

Final Research Paper (1.25-inch margins, 12pt font size, double spacing, about 15 pages long excluding tables, figures, and references): Due 5 pm on December 9th, 2016 (last day of classes).

Describe and motivate your research question and provide a brief literature review. Explain in detail how you obtained your data and the econometric technique used to answer your question. Present your results and explain the economic meaning of the results. If you are aware of any shortcomings of your paper, describe them and explain why you were unable to resolve the issue. Submit a hard copy in the locked box, upload your code, data, and your paper to the *turnitin* folder on the course moodle. Detailed guidelines will be provided later.

Evaluation: A proposal is graded based on whether you followed the above instructions carefully. Late proposals will receive zero credit. Failure to submit a proposal will lead to zero credit for *both* the proposal and research paper. Grading of a paper will be based primarily on the quality of your analysis. However, I expect your papers to be well-written and polished. Late papers are penalized at the rate of one letter grade per day late.

Late Papers: Late proposals and papers are penalized at the rate of one letter grade per day late.

Writing: If you would like assistance with your writing, consult with the Writing Workshop (sessions nearly daily in multiple locations around campus).

Turnitin: In addition to submitting your papers directly to me, the proposal and final paper must also be submitted by you to the turnitin assignments section on Moodle.

Prize: All papers that earn a grade of A or A+ will be eligible for consideration for the department's Lebergott-Lovell Prize, which is awarded annually to the best paper written in the current academic year that uses econometric techniques to analyze an economic problem. However, any paper that forms part of an honors thesis or senior essay is automatically excluded from consideration for the prize. The 3-person committee will be chaired by the econometrics instructor.

Exams

The exams are designed to be completed within the standard 80 minute class period. The first exam will be held on Wednesday, October 19th. The second exam will be held during the registrar-assigned final exam time slot of Wednesday, December 14th, 2pm -5pm. [Although the final exam time slot is 3 hours, you will not be allowed to work past the 2 hour mark.]

You should view the problem sets as being mini-exams in the sense that the exam questions will be calibrated to the same degree of difficulty as the problem set questions. The key differences between problem sets and an exam will be: (1) time constraints, and (2) resources (you can't ask other folks for advice). Note, that these constraints automatically mean that the exam questions will have to be easier and/or shorter than problem set questions. (You will have access to sample exams via the course moodle.)

Honor Code: All work submitted for a grade in this course must be your own original work. You are encouraged to discuss the assignments with your fellow students, but in accordance with the Honor Code, submitting another person's work as your own would constitute plagiarism and will not be tolerated. The research paper cannot be submitted in another course without express prior permission from both me and the instructor of the other course. If you have any questions about the application of the honor code, please contact me.

Missed Assignments: Should a personal emergency necessitate missing a scheduled exam or paper submission deadline, contact me as soon as possible **prior to the relevant date** to arrange for an alternative. Any such absence requires written certification from the Deans' Office.

Students with Disabilities: Wesleyan University is committed to ensuring that all qualified students with disabilities are afforded an equal opportunity to participate in and benefit from its programs and services. To receive accommodations, a student must have a documented disability as defined by Section 504 of the Rehabilitation Act of 1973 and the ADA Amendments Act of 2008, and provide documentation of the disability. Since accommodations may require early planning and generally are not provided retroactively, please contact Disability Resources as soon as possible. If you believe that you need accommodations for a disability, please contact Dean Patey in Disability Resources, located in North College, Room 021, or call 860-685-5581 for an appointment to discuss your needs and the process for requesting accommodations. Information can be found at <http://www.wesleyan.edu/studentaffairs/disabilities/>.

Contact: E-mail is my preferred way of being contacted. Normally I will respond within a day, excluding illness and travel. Placing in the subject of your email the phrase "Econ 385" plus a description of your message will likely result in a faster reply than a blank or generic subject.

My office is room 221 PAC. I will be available for questions during office hours and by appointment. If the door is open you should feel free to drop in, but understand that sometimes we may need to schedule a later appointment. If the door is closed, I am either not in or not available to meet with students.

Course Schedule

Below is a list of topics to be covered in the course, and approximate dates for the material. This outline is meant to be a very rough guide only; the dates for the various assignments, however, are not expected to change. The required readings are almost entirely from the Wooldridge textbook [W] and some (optional) readings are listed from the Wooldridge and Kennedy textbooks [K]. For all readings from [K] the notes are considered exceedingly optional unless specifically listed below.

Assignments will be available on-line, and are due as indicated below. Check the course moodle for revisions to this schedule. Materials are added to the course moodle as the course progresses, including class lessons, handouts, homework assignments, links, and articles.

Date	Required Readings	Optional Readings	Assignment
I. Introduction and Review			
1. Mon., Sept. 5	[W] Ch.1.1-1.3 (1.4 optional); App. A; App. B	[K] p. xii; Ch. 1; App. A; App. B	
2. Wed., Sept. 7	[W] App. C (can skim C.5-6); App. D		
Introduction to Stata I: Wed. Sep. 7 OR Thu. Sep. 8, 3:00-4:30, ALLB 204.			
3. Mon., Sept. 12	[W] App. D; Ch.2		PS1 due Tue, Sept. 13
4. Wed., Sept. 14	[W] Ch.2 (including Appendix); App. E.1		
5. Mon., Sept. 19	[W] Ch.3 (including Appendix)	[K] Ch. 3	PS2 due Tue, Sept. 20
II. Multiple Regression Analysis: Cross-Sections			
6. Wed., Sept. 21	[W] Ch.3; App. E.2	[K] Ch.2.9; Ch.12	
Introduction to Stata II: Thu. Sep. 22, OR Friday Sep. 23, 3-4:30, ALLB 204.			
7. Mon., Sept. 26	[W] Ch.4; App. E.3	[W] App. C.5-C.6 [K] Ch.2.1-2.8; Ch.3; Ch.4.1-4.5	PS3 due Tue, Sept. 27
8. Wed., Sept. 28	[W] Ch.4	[W] App. E.4 [K] Ch.6.1-6.2	
9. Mon., Oct. 3	[W] Ch.5	[K] App.C; Ch.3.2; Ch.6; Ch.7	PS4 due Tue, Oct. 4
10. Wed., Oct. 5	[W] Ch.6 (skim; cover 6.3-6.4 in class; exclude App.); Ch.7.1-7.4 (skim; cover 245-248 in class)	[K] Ch.5; Ch.6; Ch.15	
11. Mon., Oct. 10	[W] Ch.8 (Exclude 8.5)	[K] Ch.8.1-8.3	PS5 due Tue, Oct. 11
12. Wed., Oct. 12	[W] Ch.9.4-9.5		
13. Mon., Oct. 17	Wrap up & Review		
Wed., Oct. 19	Test 1		Test 1
Fri., Oct. 21	Project proposal Due upload to Moodle via <i>turnitin</i> by noon.		

Date	Required Readings	Optional Readings	Assignment
II. Multiple Regression Analysis: Time Series			
14. Wed., Oct. 26	[W] Ch.19 [K] Ch.22	[K] Ch.5; Ch.6	
15. Mon., Oct. 31	[W] Ch.10 (skim; cover parts of sections 10.2, 10.3, and 10.5 in class)	[K] Ch.8.4; Ch.19	PS6 due Tue, Nov. 1
16. Wed., Nov. 2	[W] Ch.11.1-11.3, Ch.12	[K] Ch.19.1-19.4; Ch.8	PS7 due Tue Nov. 8
Stata: Analysis of Time Series: Wed. Nov. 2, OR Thu Nov. 3, 3:00-4:30, ALLB 204.			
17. Mon., Nov. 7	[W] Ch.12, Ch.18.1-18.4	[K] Ch.19.5-19.6; Ch.10.2	
18. Wed., Nov. 9	[W] Ch.18.1-18.4 (skim 18.5)	[K] Ch.19.5-19.6; Ch.10.2	
III. Multiple Regression Analysis: Panel Data			
19. Mon., Nov. 14	[W] Ch.13 (skim; we'll cover parts of sections 13.1-13.3, 13.5), Ch.14	[K] Ch.18	PS8 due Tue, Nov. 15
20. Wed., Nov. 16	[W] Ch.9.2; Ch.15 (skim 15.4, 15.6-15.8) ,	[K] Ch.9; Ch.8.5; Ch.10.1	
Stata: Analysis of Panel Data: Wed. Nov. 16, OR Thu Nov. 17, 3:00-4:30, ALLB 204.			
20. Mon., Nov. 21	[W] Ch.15		PS9 due Tue, Nov.22
21. Mon., Nov. 28	[W] Ch.16 (skim 16.5-16.6)	[K] Ch.11	PS10 due Tue, Nov.29
22. Wed., Nov. 30	[W] Ch.17 (including both appendixes; skim 17.3);	[K] Ch.16, Ch.17.1-17.3	
23. Mon., Dec. 5	[W] Ch.17 Wrap up		
24. Wed., Dec. 7	Cover extensions for future reference; Workshop papers	Workshop papers	
Fri., Dec. 9	Final Paper due by 5pm.		
Wed., Dec. 14	Final Exam: 2 pm- 5 pm		Final Exam