Cross Section and Time Series Econometrics (ECON 6113)
Spring 2017

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Office Hours: Wednesday and Thursday 4:00PM-5:30PM or by appointment. ***Office hours will be held in the shared faculty office space on the 7th floor of the Center City Building.***

Lecture Time: Thursday 5:30PM-8:15PM. Center City Building Room 601.

Prerequisites: Permission of the graduate program director.

Textbook: *Introductory Econometrics: A Modern Approach 6th Edition* by Jeffrey Wooldridge.

Course Web Page: All relevant information for this course – including assignments, a course outline, data for empirical exercises, lecture notes, and the syllabus – will be posted on the class Canvas page.

Communication: Email is the easiest way to reach me. I will be using email to send out announcements throughout the semester, and I will expect you to be checking your UNC Charlotte email account on a regular basis. If you primarily use a non-UNCC email address for communication, you may want to consider having your UNCC emails forwarded to that alternative account.

Course Objective: The objective of this course is to provide an introduction to econometric analysis. Upon successful completion of the class, students should be able to estimate a wide variety of econometric models, interpret the output from such models, write basic code for econometric software, and understand the strengths and limitations of the various econometric techniques covered throughout the term.

Software: In this course you will be using STATA to complete problem sets and a term project. STATA is installed on all Belk College computers. Additionally, you can access STATA remotely from your personal computers via Citrix; information on how to use STATA through Citrix are available on the Canvas page. If you wish to purchase a copy of STATA for your personal machine, you can do so at a discounted rate here. For the purposes of this course, I will assume that you have no previous experience writing STATA code. **Given the computational nature of the class, you are encouraged to bring your laptops to the lectures.**

Problem Sets: Problem sets will be assigned throughout the semester. I anticipate assigning approximately 5 problem sets, but the exact number of assignments will depend

on how quickly we cover the material. These assignments will generally be a mix of theory, simulation, and empirical application. All assignments with an empirical or simulation component must be submitted with the STATA log file associated with the homework. Due dates for the problem sets will be set when the assignment is distributed. LATE PROBLEM SETS WILL NOT BE ACCEPTED. For the calculation of your final grade, your lowest problem set score will be dropped. For example, say that 5 problem sets were assigned throughout the term and you received the following scores (out of 100): 20% (lowest score), 80%, 75%, 90%, and 100%. The total number of grade points you would receive for the problem set component of the course would be: 20*(0.8+0.75+0.9+1)/4=17.25.

Exams: Two examinations will be given in this course. The exams will be "closed book," but you will be allowed to bring one "formula card" to the test. This card's dimensions must not exceed 8.5 by 5.5 inches (approximately half the size of a piece of paper). The formula card **must be handwritten**; study cards that exceed the size limit and those that are not handwritten – such as those that contain printed or photocopied text or mathematics – will be confiscated. You will be permitted to utilize a simple non-graphing calculator during the tests. These calculators will be distributed at the beginning of the exam. **YOU ARE NOT PERMITTED TO USE ANY OTHER CALCULATOR ON THE EXAMS, INCLUDING THOSE ON YOUR MOBILE PHONE.**

If you miss an exam for a legitimate reason, (e.g., a documented illness or participation in a university-sponsored event) you will be permitted to take an exam of an alternative format. Note that this applies only to excusable absences. If you just skip an exam, you will receive a zero, which is severely detrimental to your grade in this course.

Term Project: 30 percent of your grade in this course will depend on the completion of an empirical project. I will provide you with the data for this project, which will be extracted from the [Freddie Mac Single Family Loan-Level Dataset](). The goal of the project is to develop a "scorecard" to predict mortgage defaults. The analysis for the project must be conducted in STATA for you to receive a grade. Furthermore, **THE PROJECT MUST BE COMPLETED INDEPENDENTLY.** After the code for the projects is submitted, I will test the performance of your model on an out-of-time sample. **The student that builds the model that exhibits the best model as measured by the Kolmogorov Smirnov test statistic will receive 5 additional points on her/his final grade.** For example, if your total course grade based on all of the exams, problem sets, and the term projects is an 85% and you build the best mortgage scorecard, your final course grade will be a 90%. More information on the content and structure of the term project can be found on Canvas.

Grading: Students will be graded on the basis of exams, the completion of problem sets, and a term project. Should you have any questions about your grade in the class, just ask. **WITH THE SOLE EXCEPTION OF THE BONUS POINTS THAT CAN BE EARNED BY WINNING THE TERM PROJECT COMPETITION, THERE IS NO EXTRA CREDIT IN THIS COURSE.**

Grade Weighting Percentages and Calculating Your Grade: Your final grade will be weighted as indicated below

Midterm Exam	25%
Final Exam	25%
Term Project	30%
Problem Sets	20%
Total	100%

To calculate your final grade in this class, you simply need to multiply the weight for each assignment type above by the fraction of the total points that you received for that assignment type. For example, say that you received a 75% on the Midterm Exam, a 90% on the Final Exam, and a 95% on your Term Project. Additionally, say that 5 problem sets were assigned throughout the term and you received the following scores (out of 100): 20% (lowest score), 80%, 75%, 90%, and 100%. After dropping your lowest homework score, the total number of grade points you would receive for the problem set component of the course would be: $20*(0.8+0.75+0.9+1)/4=17.25$. You would also receive 18.75 points $(25*.75)$ for the Midterm Exam, 22.5 points for the Final Exam $(25*.90)$, and 28.5 points for the Term project. $(30*.95)$. In this example, the final overall course grade would be an 87.$(17.25+18.75+22.5+28.5)$.

Grading Scale: Below you will find the baseline scale that will be used to determine your final grade in this course. For each grade category, you should interpret the lower end of the numeric range as the minimum grade you need to ensure that you will receive that particular letter grade. For example, a final grade of 80% in this course will guarantee that you will receive *at least* a B. The lower bound for achieving any given grade can be revised at my discretion. Standard rounding (e.g., 80.45 will round up to an 81, while 80.44 will round down to an 80) will be used to calculate your final grade. **DO NOT CONTACT ME FOLLOWING THE FINAL POSTING OF YOUR FINAL GRADE TO REQUEST THAT IT BE ARBITRARILY ROUNDED UPWARDS. I WILL NOT RESPOND TO SUCH EMAILS.**

> A 90-100
> B 80-89
> C 70-79
> U <70

Key Dates: The dates for the midterm exam and term project are listed below. The final exam will be given during finals week; the exact date of this exam will be announced during the semester. The due dates for the problem sets will be announced when the problem sets are assigned.

> **January 16th, 2017:** End of Drop-Add Period
> **March 2nd, 2017:** Midterm Exam
> **March 9th, 2017:** Spring Break (No Class)
> **March 13th, 2017:** Unsatisfactory Grade Notification

March 20th, 2017: Last Day to Withdraw from Course
April 27th, 2017: Term Project Due
May 3rd, 2017: Reading Day
May 4th-11th, 2017: Final Exam *Exact Date, Time, and Location TBD*

Attendance Policy: You will not be penalized for missing classes during my lectures. If you do miss a lecture, you are responsible for any material I cover in your absence. In my experience there has been a strong positive correlation between class attendance and student performance. That said, attendance is strongly recommended.

Academic Integrity: All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Definitions and examples of plagiarism are set forth in the Code. The Code is available from the Dean of Students Office or online here.

Faculty may ask students to produce identification at examinations and may require students to demonstrate that graded assignments completed outside of class are their own work.

Email Etiquette Policy: Email will be used extensively in this class. In preparation for your future career, as well as out of general courtesy, you are expected to write professional emails that include a salutation and a signature indicating your name. Emails should also be written in clear, concise English. If you fail to abide by this etiquette, you should not expect a response to your message. For general information on email etiquette, see this link.

Accommodations for Disabilities: If you have a disability and need academic accommodations, please provide a letter of accommodation from the Office of Disability Services early in the semester. For more information about such accommodations, you may contact the Office of Disability Services at 704-687-0040 or visit the Office of Disability Services in Fretwell 230.

Diversity Statement: The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Title IX Reporting: UNC Charlotte is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Please be aware that many UNC Charlotte employees, including all faculty members, are considered Responsible Employees who are required to relay any information or reports of sexual misconduct they receive to the Title IX Coordinator. This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I must report the information to the Title IX Coordinator. Although I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

If you wish to speak to someone confidentially, you can contact any of the following on-campus resources, who are not required to report the incident to the Title IX Coordinator: (1) University Counseling Center (counselingcenter.uncc.edu, 7-0311); (2) Student Health Center (studenthealth.uncc.edu, 7-7400); or (3) Center for Wellness Promotion (wellness.uncc.edu, 7-7407). Additional information about your options is also available at titleix.uncc.edu under the "Students" tab.

Mobile Devices: The use of cell phones, smart phones, or other mobile communication devices is disruptive, and is therefore prohibited during class. Except in emergencies, those using such devices must leave the classroom for the remainder of the class period.

Personal Computer Use: *Given the computational nature of the course, students are encouraged to bring laptops to the lecture.* Students are permitted to use computers during class for note-taking and other class-related work only. Those using computers during class for work not related to that class must leave the classroom for the remainder of the class period.

Plagiarism Detection Software: As a condition of taking this course, all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. No student papers will be submitted to Turnitin.com without a student's written consent and permission. If a student does not provide such written consent and permission, the instructor may: (i) require a short reflection paper on research methodology; (ii) require a draft bibliography prior to submission of the final paper; or (iii) require the cover page and first cited page of each reference source to be photocopied and submitted with the final paper.

General Course Schedule: Below is the order in which I plan to cover topics in this course and the section of the textbook that corresponds with these topics. This schedule is only tentative and is subject to revision throughout the term. "*Wooldridge*" refers to the 6th edition of *Introductory Econometrics: A Modern Approach* by Jeffrey Wooldridge.

- Introduction and Syllabus
- *Wooldridge* Chapter 2: The Simple Regression Model

- *Wooldridge* Chapter 3: Multiple Regression Analysis: Estimation
- *Wooldridge* Chapter 4: Multiple Regression Analysis: Inference
- *Wooldridge* Chapter 7: Multiple Regression Analysis with Qualitative Information: Binary (or Dummy) Variables
- *Wooldridge* Chapter 17: Limited Dependent Variable Models and Sample Selection Corrections
- *Wooldridge* Chapter 5: Multiple Regression Analysis: OLS Asymptotics
- *Wooldridge* Chapter 6: Multiple Regression Analysis: Further Issues
- *Wooldridge* Chapter 8: Heteroskedasticity
- *Wooldridge* Chapter 9: More on Specification and Data Issues
- *Wooldridge* Chapter 10: Basic Regression Analysis with Time Series Data
- *Wooldridge* Chapter 11: Further Issues in Using OLS with Time Series Data
- *Wooldridge* Chapter 12: Serial Correlation and Heteroskedasticity in Time Series Regressions
- *Wooldridge* Chapter 13: Pooling Cross Sections across Time: Simple Panel Data Methods
- *Wooldridge* Chapter 14: Advanced Panel Data Methods
- *Wooldridge* Chapter 15: Instrumental Variables Estimation and Two Stage Least Squares
- *Wooldridge* Chapter 16: Simultaneous Equation Models
- *Wooldridge* Chapter 18: Advanced Time Series Topics

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class and/or by email.