

ECON 4112: ECONOMETRICS II

Syllabus for Spring 2020

2:30 p.m. – 3:45 p.m. MW

Friday 155

Instructor

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Office Hours

9:30 a.m. – 10:15 a.m. MW (Friday Building)

4:00 p.m. – 5:30 p.m. M (Friday Building)

5:00 p.m. – 5:30 p.m. W (Center City Building)

If the hours established are not convenient, feel free to make an appointment with me for another time or to stop by at another time when I am in the office.

Textbooks

There are two textbooks that are especially useful for this course:

- (1) Stock, James H., and Mark W. Watson. 2019. *Introduction to Econometrics*, 4th edition. Boston, MA: Pearson Addison Wesley.
- (2) Wooldridge, Jeffrey M. 2020. *Introductory Econometrics: A Modern Approach*, 7th edition. Boston, MA: Cengage Learning.

If you already have one of these textbooks, then you will be fine; if you do not already have one of these textbooks, then you should buy one of them as soon as possible. If you have the updated 3rd edition of Stock and Watson (Stock and Watson 2015) or the 6th edition of Wooldridge (Wooldridge 2016), you will also be fine.

Catalog Course Description

ECON 4112: Econometrics II – Investigates advanced data analysis techniques commonly used by economists, focusing on applications, understanding the strengths and limitations of the methods involved, using statistical and econometric software, and interpreting results. Techniques covered include, but are not limited to, models for dependent variables that are binary in nature, estimation of nonlinear relationships, analysis of panel data (pooled cross-sectional and time series data), and consequences of violation of the classical linear regression model assumptions. Prerequisites: ECON 2101, ECON 2102, and ECON 3112; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above; or permission of the instructor.

Course Objectives

We will investigate selected advanced data analysis techniques that economists often use. We will focus on understanding the strengths and limitations of the methods we cover, on using econometric software to apply these methods, and on interpreting the results we get.

Software

We will use STATA for the applications we do in this course. STATA is available on all Belk College computers. You can purchase STATA at a reduced rate through the STATA website

(<http://www.stata.com/order/new/edu/gradplans/student-pricing/>). The STATA/IC version is sufficient for the problem sets that you will be assigned in this course. The websites <http://data.princeton.edu/stata/>, <http://www.ats.ucla.edu/stat/stata/>, and <https://www.ssc.wisc.edu/sscc/pubs/sfr-intro.htm> have a number of examples and other resources that you may find helpful as you work with STATA.

Means of Student Evaluation

Course grades will be determined by your performance on 4 problem sets (6% each), 10 short quizzes (1% each), 3 tests (12% each), and a comprehensive final examination (30%). Letter grades will be based on the following scale: A, 90%-100%; B, 80%-89.99%; C, 70%-79.99%; D, 60%-69.99%; F, below 60%.

NOTE WELL: Your course grade will be based only on your performance on the 4 problem sets, the 10 short quizzes, the 3 tests, and the comprehensive final examination. Individual extra credit assignments will **NOT** be made.

Problem Sets

Problem sets must be typed and must be submitted in class on the assigned due dates. A problem set may be submitted after the due date, but there will be a penalty of 10 points for each day that the submission is late. Once a problem set has been graded and returned to the class, no late submission will be accepted, and you will receive a grade of zero on that problem set. The first problem set will be due on January 22; the second, on February 19; the third, on March 25; and the fourth, on April 22.

Short Quizzes and Tests

The short quizzes will be on January 15, January 22, February 5, February 12, February 19, March 11, March 18, March 25, April 8, and April 15. The first test will be given on January 29; the second, on February 26; and the third, on April 1. The comprehensive final examination will be given at 2:00 p.m. on May 4 (the exam slot assigned for this course).

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 at <http://legal.uncc.edu/policies/up-407>. Please be aware that faculty may ask students to produce identification at examinations and that faculty may require students to demonstrate that assignments completed outside of class are their own work.

Disability Accommodations

UNC Charlotte is committed to access to education. 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 accommodations, you may contact the Office of Disability Services at 704-687-0040 or visit the Office of Disability Services itself in Fretwell 230.

Revision of Syllabus during Semester

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 by email.

Attendance

Students are expected to attend every class and remain in class for the duration of the session. Failure to attend class or arriving late may affect your ability to achieve course objectives, which could affect your course grade. An absence—whether excused or unexcused—does not relieve a student of any course requirement. Regular class attendance is a student's obligation, as is a responsibility for all the work done

during class meetings. If you do have to miss a class, you should NOT ask me to go over with you the lecture material that you missed. It is your responsibility to get this information from one of your classmates.

Consistent class attendance is a strong predictor of academic success. If you earn a grade of F in this course, your last date of attendance/participation will be reported. This may require you to pay back any financial aid money received for this course.

Instructor Absence or Tardiness

If I am late in arriving to class, you must wait a full 20 minutes after the start of class before you may leave without being counted absent, or you must follow any written instructions that I give you about my expected tardiness.

Computer Use in the Classroom

Students are permitted to use computers during class only for taking notes and for doing other class-related work. Those using computers during class for work that is not related to this class must leave the classroom for the remainder of the class period.

Recording in the Classroom

Electronic video and/or audio recording is not permitted during class unless the student obtains permission from the instructor. If permission is granted, any distribution of the recording is prohibited. Students with specific electronic recording accommodations authorized by the Office of Disability Services do not require instructor permission, but the instructor must be notified of any such accommodation prior to recording. Any distribution of such recordings is prohibited.

Course Withdrawals

The last day to withdraw from courses with grades of W is March 16. Students are expected to complete all courses for which they are registered at the close of the add/drop period. If you are worried about your ability to succeed in this course, then you should talk with me as soon as possible. University policy allows students only a limited number of opportunities to withdraw from courses. It is important for you to understand the financial and academic consequences of course withdrawals. For more information, see the UNC Charlotte policy on withdrawals at <https://provost.uncc.edu/policies/withdrawal>.

Belk College of Business 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.

Outline of Topics and Reading Assignments

I assume you have a basic knowledge of calculus and probability and statistics, so we will not be reviewing these topics in class. The material you need is covered in Chapters 2 & 3 of Stock and Watson (2019) or Stock and Watson (2015) and in Math Refreshers A, B, & C of Wooldridge (2020) or Appendices A, B, & C of Wooldridge (2016).

- I. Simple and Multiple Regression Analysis: Estimation
Stock and Watson (2019) / *Stock and Watson (2015)* / Chapters 4 & 6
Wooldridge (2020) / *Wooldridge (2016)* / Chapters 2 & 3
- II. Simple and Multiple Regression Analysis: Inference
Stock and Watson (2019) / *Stock and Watson (2015)* / Chapters 5 & 7
Wooldridge (2020) / *Wooldridge (2016)* / Chapters 4 & 5

- III. Nonlinear Regression Functions
 - Stock and Watson (2019) / *Stock and Watson (2015)* / Chapter 8
 - Wooldridge (2020) / *Wooldridge (2016)* / Chapter 6
 - Wooldridge (2020), Chapter 7, pp. 221-239 / *Wooldridge (2016), Chapter 7, pp. 205-224*
- IV. Qualitative Dependent Variable Models
 - Stock and Watson (2019) / *Stock and Watson (2015)* / Chapter 11
 - Wooldridge (2020), Chapter 7, pp. 239-244 / *Wooldridge (2016), Chapter 7, pp. 224-231*
 - Wooldridge (2020), Chapter 17, pp. 560-571 / *Wooldridge (2016), Chapter 17, pp. 525-536*
- V. Regression Analysis with Time Series Data
 - Wooldridge (2020), Chapter 10, pp. 334-335 & pp. 339-345
 - Wooldridge (2016), Chapter 10, pp. 312-313 & pp. 317-323*
 - Wooldridge (2020) / *Wooldridge (2016)* / Chapter 11
 - Wooldridge (2020), Chapter 12, pp. 395-415 / *Wooldridge (2016), Chapter 12, pp. 373-391*
- VI. Introduction to Forecasting
 - Stock and Watson (2019), Chapter 15, pp. 513-540
 - Stock and Watson (2015), Chapter 14, pp. 523-551 & pp. 567-573*
 - Wooldridge (2020), Chapter 18, pp. 622-628 / *Wooldridge (2016), Chapter 18, pp. 586-592*
- VII. Trends and Breaks
 - Stock and Watson (2019), Chapter 15, pp. 540-554
 - Stock and Watson (2015), Chapter 14, pp. 551-567 & pp. 573-574*
 - Wooldridge (2020), Chapter 18, pp. 610-616 / *Wooldridge (2016), Chapter 18, pp. 574-580*
- VIII. Dynamic Causal Effects
 - Stock and Watson (2019), Chapter 16 / *Stock and Watson (2015), Chapter 15*
 - Wooldridge (2020), Chapter 10, pp. 335-338 / *Wooldridge (2016), Chapter 10, pp. 313-316*
- IX. Regression Analysis with Panel Data
 - Stock and Watson (2019) / *Stock and Watson (2015)* / Chapter 10
 - Wooldridge (2020) / *Wooldridge (2016)* / Chapters 13 & 14