BPHD 8120: ECONOMETRICS I
Syllabus for Fall 2021
9:05 a.m. – 11:50 a.m. M
Friday 207

Instructor
Rob Roy McGregor
227C Friday Building
Phone 704-687-7639
Email rrmcgreg@uncc.edu

Office Hours
2:15 p.m. – 3:45 p.m. MW
4:00 p.m. – 5:30 p.m. R
If these hours 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.

Catalog Course Description
BPHD 8120: Econometrics I – Advanced study of the theory and application of statistics to economic problems. Topics include the derivation of least squares estimators, maximum likelihood estimation, and problems of multicollinearity, heteroskedasticity, and autocorrelation. Prerequisites: Admission to the Ph.D. in Business Administration or permission of the instructor.

Course Objectives
We will investigate basic econometric methods that are used in applied work in fields such as economics, finance, and public policy. 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.

Textbooks and Other Resources
There are three textbooks that are required for this course:


There are other introductory or specialized econometrics textbooks that you may find useful:


intuition behind econometric analysis. It can take some time to develop an appreciation for this book, but come to appreciate it you surely will.

**Software**
I will support STATA for the econometric analyses that you will be doing in this course. You are free to use other software, but I may not be able to help you if you have any trouble completing assignments with other software. 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/). STATA is also available via Apporto. The website https://spaces.uncc.edu/pages/viewpage.action?pageId=49033481 has instructions for accessing Apporto. The websites https://dss.princeton.edu/training/, https://stats.idre.ucla.edu/stata/, and https://www.ssc.wisc.edu/sscc/pubs/sfr-intro.htm provide a number of examples and other resources that you may find helpful as you work with STATA.

**Means of Student Evaluation**
Grades will be determined by your performance on 4 problem sets (12.5% each), a mid-term examination (20%), and a final examination (30%). Letter grades for the course will be based on the following scale: A, 90%-100%; B, 80%-89.99%; C, 70%-79.99%; U, below 70%. Grades will be based solely on your performance on the problem sets, the mid-term examination, and the final examination. Individual extra credit assignments will **NOT** be made.

**Problem Sets**
Problem sets must be typed and must be submitted by email on the assigned due date. A problem set may be submitted after the due date, but there will be a penalty of one letter grade for each day that the submission is late. Once a problem set has been graded and returned, or once the solutions to a problem set have been distributed, no late submission will be accepted, and a grade of zero will be assigned. Problem sets will be due on September 10, September 24, November 5, and December 3.

**Mid-Term and Final Examinations**
The mid-term examination will be given on October 4, and the final examination will be 8:00 a.m. – 10:30 a.m. on December 13 (the exam time slot assigned to 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 and on the Student Conduct and Academic Integrity website. The Code is available from the Dean of Students Office or online at legal.uncc.edu/policies/up-407. Additional resources are available on the Student Conduct and Academic Integrity website.

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.
Disability Accommodations
Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services and follow the instructions of that office for obtaining accommodations.

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.

Face Coverings
It is the current policy of UNC Charlotte that as a condition of on-campus enrollment, all students are required to engage in safe behaviors to avoid the spread of COVID-19 in the 49er community. Such behaviors specifically include the requirement that all students properly wear CDC-compliant face coverings in all indoor spaces on campus, including classrooms and labs, regardless of vaccination status. Failure to comply with this policy in the classroom or lab may result in dismissal from the current class session. If the student refuses to leave the classroom or lab after being dismissed, the student may be referred to the Office of Student Conduct and Academic Integrity for charges under the Code of Student Responsibility.

Attendance
Students are expected to attend every class and remain in class for the duration of the session when it is safe to do so in accordance with University guidance about COVID-19. Failure to attend class or arriving late may affect your ability to achieve course objectives, which could affect your course grade. An absence, 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 of class meetings, including tests and written tasks.

Students are encouraged to work directly with their instructors regarding their absence(s). For absences related to COVID-19, please adhere to the following:

- Complete your Niner Health Check each morning.
- Do not come to class if you are sick. Please protect your health and the health of others by staying home. Contact your healthcare provider if you believe you are ill.
- If you are sick: If you test positive or are evaluated by a healthcare provider for symptoms of COVID-19, indicate so on your Niner Health Check to alert the University. Submit a copy of your Niner Health Check notification email to your instructors. Upon learning that you have tested positive or have been diagnosed for symptoms of COVID-19, either from your reporting or from Student Health Center testing or diagnosis, representatives from Emergency Management and/or the Student Health Center will follow up with you, and your instructors will be notified of the need for accommodations, as necessary.
- If you have been exposed to COVID-19 positive individuals and/or have been notified to self-quarantine due to exposure, indicate so on your Niner Health Check to alert the University. Representatives from Emergency Management and/or the Student Health
Center will follow up with you as necessary. Submit a copy of your Niner Health Check notification email to your instructors. If you need any additional support verifying your absence after you have communicated with your professors, contact Student Assistance and Support Services.

To return to class after being absent due to a period of **self-quarantine**, students should submit a copy of their Niner Health Check clearance email to their instructor(s). To return to class after being absent due to a COVID-19 **diagnosis**, students should submit an online request form to Student Assistance and Support Services (SASS). Supporting documentation can be attached directly to the request form and should be from a student's health care provider or the Student Health Center, clearly indicating the dates of absences and the date the student is able to return to class. Instructors will be notified of such absences.

If you are absent from class as a result of a COVID-19 diagnosis or quarantine, as instructor I will help you continue to make progress in the course by providing remote learning options and assignments on a case-by-case basis. The final decision for approval of all absences and missed work is determined by the instructor.

**Instructor Absence or Tardiness**
If I am late in arriving to class, you must wait a full 30 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, image capture, and/or audio recording is not permitted during class, whether conducted in person or online, 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; however, the instructor must be notified of any such accommodation prior to recording. Any distribution of such recordings is prohibited.

**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 that you have a working knowledge of calculus, matrix algebra, and statistics. The material that you need for this course is covered in Math Refreshers A, B, and C of Wooldridge
If this is your first course in econometrics, see Chapter 1 of Verbeek (2017), Chapter 1 of Wooldridge (2020), and Chapter 1 of Stock and Watson (2019) for introductions to the subject.

I. Linear Regression with One Regressor
   Wooldridge (2020), Chapter 2, pp. 20-36 & pp. 40-51
   Stock and Watson (2019), Chapter 4, pp. 102-114

II. Linear Regression with One Regressor: Additional Topics
    Wooldridge (2020), Chapter 2, pp. 36-40 & pp. 51-56

III. Linear Regression with Multiple Regressors: Introduction
     Stock and Watson (2019), Chapter 6, pp. 175-183

IV. Linear Regression with Multiple Regressors: Matrix Formulation
    Verbeek (2017), Chapter 2
    Wooldridge (2020), Chapter 3, pp. 89-92
    Wooldridge (2020), Chapter 5
    Stock and Watson (2019), Chapter 4, pp. 114-122
    Stock and Watson (2019), Chapter 6, pp. 183-192

V. Linear Regression with Multiple Regressors: Additional Topics
   Verbeek (2017), Chapter 3
   Wooldridge (2020), Chapter 6
   Wooldridge (2020), Chapter 7, pp. 221-239
   Stock and Watson (2019), Chapter 6, pp. 169-174

VI. Regression with a Binary Dependent Variable: Introduction
    Wooldridge (2020), Chapter 7, pp. 239-244
    Stock and Watson (2019), Chapter 11

VII. Heteroskedasticity
     Verbeek (2017), Chapter 4, Sections 4.1 – 4.5
     Wooldridge (2020), Chapter 8
     Stock and Watson (2019), Chapter 5 & 7

VIII. Autocorrelation
      Verbeek (2017), Chapter 4, Sections 4.6 – 4.11
      Wooldridge (2020), Chapter 11
      Wooldridge (2020), Chapter 12, pp. 395-415
IX. Introduction to Forecasting: Autoregressive and Autoregressive Distributed Lag Models
   Verbeek (2017), Chapter 8, Sections 8.1 – 8.2 & 8.6 – 8.10
   Stock and Watson (2019), Chapter 15, pp. 513-540

X. Introduction to Forecasting: Trends and Breaks
   Verbeek (2017), Chapter 8, Sections 8.3 – 8.5
   Stock and Watson (2019), Chapter 15, pp. 540-554, & Chapter 17, pp. 616-620
   Wooldridge (2020), Chapter 10, pp. 351-360
   Wooldridge (2020), Chapter 18, pp. 610-616 & pp. 622-628

XI. Estimating Dynamic Causal Effects
   Verbeek (2017), Chapter 9, Section 9.1
   Stock and Watson (2019), Chapter 16
   Wooldridge (2020), Chapter 10, pp. 336-338