ECON6217: Advanced Microeconometrics
Spring 2021

Instructor: Dr. Craig A. Depken II **E-mail:** cdepken@uncc.edu
Office: 229A Friday **Office Hours:** By appointment
Phone: 704.687.7474 **Class Meets:** W 6:30-9:15 (online)

Course Objective: This course provides students with econometric tools typically used in microeconometric analysis including maximum likelihood, binary and multiple response models, censored and truncated data, count data models, sample selection models, and duration models. This course also focuses on econometrics can help identify causality including panel models, matching models, regression discontinuity models, quantile regression, and instrumental variable models.

Text and readings: There is no dedicated textbook for this course. Recommended texts include *Mostly Harmless Econometrics* and *Mastering Metrics* by Angrist and Pischke and *Microeconometrics using Stata* by Cameron and Trivedi. An excellent resource is *Econometric Analysis of Cross Section and Panel Data* by Jeffery Wooldridge. Another good source is *A Guide to Econometrics* by Peter Kennedy. Course readings will be assigned in advance and posted at the course's Canvas page.

Software: Stata is the supported software in this course. Stata is available on campus computers, is available remotely via aporto, or can be purchased for a reduced price at *www.stata.com*. GRETL is a free econometric software package available at *gretl.sourceforge.net*. R is a free econometric software package available at *www.r-project.org*. SAS is also capable of estimating most of the models discussed in this class. You can use any software you wish (SAS, R, Matlab, etc.) to perform out-of-class projects, however I can only support Stata and GRETL (and a little SAS).

Course Web Page: Course materials, projects, and data will be posted at *canvas.uncc.edu*.

Grading: Grading will proceed in the following manner:

Assignment	Total Value
5 Out-of-class assignments	100 points
1 Midterm Exam	100 points
1 Term Paper	100 points
1 Non-cumulative Final Exam	100 points
Various Quizzes	100 points
	500 points

Letter grades will be awarded as follows (after standard rounding):

A 500-437 B 436-387 C 386-336 U 335-0

Attendance: There is no attendance policy in this class. I will post video lectures of each topic along with extensive notes at the class Canvas page. Other than the first class meeting, the course is asynchronous so that you can "attend" the classes whenever you wish. Every other week, I will offer a Q&A zoom session during the posted class time of 6:30pm on Wednesday during which you can ask questions about the lecture material, Stata, or your term paper.

Academic Honesty: Please note that academic misconduct (cheating) will NOT be tolerated. In addition, students have the responsibility to know and observe the requirements of The UNC Charlotte Code of Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Academic evaluations in this course include a judgment that the students work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases, the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor.

If you are in doubt when contemplating an action, ask me first!!

There is a required academic honesty session and quiz that you need to complete by the end of the first week of class (the session is linked at the course Canvas page).

Make-up Projects: Make-up exams are generally not offered. Out-of-class assignments turned in late can earn a maximum of **60%** of the original point value.

Statement on Diversity: 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.

Important dates (subject to change):

- First Day of Class: Jan 20 (zoom meeting)
- No Class: Mar 31 (Spring Break)
- Term paper proposal: Mar 12 (Friday)
- Final term paper: May 7 (Friday)
- Last day of class: May 5
- Take-home Midterm Exam: due Friday, Mar 19 5:30 PM EDT
- Take-home Final Exam: due Wed May 12 5:30 PM EDT

Course Outline (Subject to Change)

Part I. What is on the Left-Hand Side?

1. OLS/MLE and Non-standard Standard Errors
2. Binary response models: linear probability model, probit, logit.
3. Multinomial response models: multinomial probit and logit (unordered and ordered)
4. Censored and Truncated Data: Tobit type models
5. Sample Selection
6. Count data: Poisson, Negative Binomial, Zero Inflated models
7. Duration data: Hazard Models

Part II: What is on the Right-Hand Side?

8. Causal Theory and Causal Inference Using Observational Data
9. Panel data models
10. Difference-in-differences
11. Matching Models
12. Regression Discontinuity Models
13. Quantile Regression
14. Instrumental Variables
15. The bootstrap, clustered standard errors, and model validation

Term Paper Guidelines

Students will write a term paper involving econometric analysis. The paper is an opportunity to apply the econometric tools learned in class to a real-world issue chosen by the student. I recommend that you choose a topic in which you are interested but also with a narrow focus. A narrow focus increases the probability that the project can be completed by semester's end and be of sufficient quality. If you have trouble choosing a paper topic, I can offer suggestions.

I recommend you begin thinking about this project as soon as possible and to avoid putting off writing the paper until the last few days of class.

Paper proposal (1-3 pages) **due Mar 12, 2021 at 5:30 PM EDT.**
Final Paper **due May 7, 2020 at 5:30 PM EDT.**

Paper guidelines:

- Papers should be 8-15 double-spaced, single-sided pages using Times New Roman 11 or 12 font;

- Papers should be generally structured in the following manner:
    - Introduction of the economic/econometric problem
    - Brief review of previous literature dealing with your problem
    - Introduction of your econometric model and data including data source(s)
    - Review and interpretation of your estimation results
    - Concluding remarks
    - Reference list
    - Econometric Results in tabular form
    - Figures

- You must provide an electronic form of your data, programs, program output and paper. If I do not receive all required files, you will receive a zero on the term paper.

- Term papers are graded as follows
    - 20 points – appropriate specification of the research question
    - 20 points – appropriate data and description
    - 20 points – appropriate methodology and description
    - 20 points – appropriate interpretation and discussion of results
    - 20 points – overall paper structure (including grammar)

Plagiarism: I will not hesitate to initiate academic dishonesty proceedings against anyone who plagiarizes. If you do not know what constitutes plagiarism, contact me first.