

ECON 400: INTRO TO ECONOMIC STATISTICS AND ECONOMETRICS

SYLLABUS

UNC SUMMER SESSION 1

SECTION 001

INSTRUCTOR: TORIA MULLEN

Email: ttmullen@live.unc.edu

Lecture Time: M/T/W/Th/F 9:45-11:15 am

Zoom Lecture: <https://zoom.us/j/91748299092?pwd=alEvN2FrRORjY3JIUXcxaG10aHYrQT09>

Passcode: econ400

Office Hours: M/W/F 12-1 pm, T/Th 5-6 pm

Office Hours Zoom: <https://zoom.us/j/91839075249?pwd=dk96eWZON2xkZW0d2xlbGZianJOZz09>

Passcode: officehour

CLASS DESCRIPTION & LEARNING OBJECTIVES

This course is a comprehensive introduction to statistics, including descriptive statistics and statistical graphics, probability theory, distributions, parameter estimation, hypothesis testing, simple and multiple regression, and use of powerful statistical estimation software. This course includes substantial introduction to basic econometrics. This course is core economics course and will prepare students for higher level field course with a strong analytic tools to tackle empirical questions. This is a 3 hour credit course. Prerequisites for the course include Econ 101, Stor 155, Math 152/231.

Students who successfully complete Econ 400 should be comfortable with basic statistics and probability. They should be able to use a statistical/econometric computer package to estimate an econometric model and be able to report the results of their work in a non-technical and literate manner. In particular a student who successfully completes Econ 400 will be able to estimate and interpret linear regression models and be able to distinguish between economic and statistical importance. They should be able to critique reported regression results in applied academic papers and interpret the results for someone who is not trained as an economist.

COURSE EXPECTATIONS

It is essential to your success in this course that you attend each lecture and participate in the discussions. Therefore, you are expected to attend each Zoom lecture **live** and to show up on time.

This is an intensive, fast paced 4 week course. To be successful in this course, it is expected to study, read, and practice problems outside of class daily. 1-3 hours of additional work is expected outside of class daily to keep of with this fast course.

This course will be mostly lecture style teaching with active learning in class assignments. There will be daily readings pre-lecture, and I recommend doing these readings and reviewing previous notes as each lecture will begin with a check in poll. There will be weekly quizzes to assess comprehension of material. There will be a group project using Stata software to analyze real data.

Respect to classmates and instructor are expected during every class. Questions and comments are encouraged to enhance the learning environment.

COURSE MATERIALS

Zoom

Lectures will be held Monday-Friday live on Zoom at 9:45-11:15. Access our class via <https://zoom.us/j/91748299092?pwd=alEvN2FrR0RjY3JIUXcxaG10aHYrQT09> . Passcode: econ400. Office hours will also be accessed via this zoom at 12 on Monday, Wednesday, Friday and 5 on Tuesday and Thursday via <https://zoom.us/j/91839075249?pwd=dk96eWZ0N2xkZW00d2xlbgZianJOZz09> . Passcode: officehour

Please activate your Zoom account, which you can get for free. You can sign up for Zoom here (unc.zoom.us). You can access the live Zoom sessions with your phone, computer, or tablet. If you have any issues with Zoom (or Sakai), you can contact ITS (<http://its.unc.edu/>).

I will record the zoom lectures and post the meetings to Sakai.

Sakai

This webpage will be used for posting course materials (e.g., slides, readings, etc.) and will be a place where you can upload your assignments. Announcements, slides, homework, tests, assignments, and grading will be accessed via Sakai <https://sakai.unc.edu>

Textbook

For this course it is highly recommended to use the textbook: James H. Stock and Mark W. Watson, Introduction to Econometrics the Edition, Pearson. The book can be obtained via the UNC Bookstore or via an online source or a textbook resale. The older 3rd edition is fine to use for this course. Reading before class will be assigned from this textbook.

This course will use Wooldridge, Introductory Econometrics: A Modern Approach, as a supplementary textbook. It is not required.

Poll Everywhere

Please activate your Poll Everywhere account, which you can get for free. You can sign up for it here (poll.unc.edu). Click the Student Account Registration link in the left hand top corner. Enter your Onyen and Password, and follow the screen's instructions. Poll Everywhere will be used daily during class as a form of participation and checking in.

Stata Software

Stata is available virtually in the Virtual Lab (VL) through Citrix receiver software that is installed on their device (<https://virtuallab.unc.edu>). Sign in using Onyen and Password. Download the VL to computer. Search Stata check box to save as a favorite site. If need more help follow directions on <https://its.unc.edu/resource/virtual-lab/>

TOPICS

1. Introduction (Chapter 1)

- Brief introduction to course
- Why study econometrics
- What is an econometric model?
- Sources of data

2. Review of Statistical and Probability Concepts (Chapter 2 and Chapter 3)

- Review of Math fundamentals
- Random Variables
- Controlled vs. uncontrolled experimental data
- Discrete vs. continuous random variables
- Probability Distributions
- Expected value
- Sample moments of a random variable
- The joint density function
- Marginal density, conditional density and independence
- Covariance and correlation
- The Normal density
- Review of Statistics
- Hypothesis tests
- P-values
- Confidence intervals

3. The Simple Linear Regression Model (Chapters 4, 5, 6, 7, and 17)

- The econometric model
- The least squares principle
- Estimating the econometric model and interpreting the results
- The properties of the least squares estimates of an econometric model
- Inference and prediction in the Simple Linear Regression Model
- Interval estimation and hypothesis testing
- Evaluating the Simple Linear Regression Model
- Heteroskedasticity
- Linear regression with multiple regressors
- Omitted variable bias
- Least squares assumption with multiple regressors
- Multicollinearity
- Test of joint hypothesis
- Using stata software to estimate and evaluate regressions

GRADING SCHEME

Grading Policy

A:	93-100	C:	73-76.99
A-:	90-92.99	C-:	70-72.99
B+:	87-89.99	D+:	65-69.99
B:	83-86.99	D:	60-64.99
B-:	80-82.99	F:	Below 60
C+:	77-79.99		

Curving grades: The assignment grades in this course are subject to curve at instructor's discretion.

Assessments

Assignment	Course Weight
Mid Term	15%
Final Exam	20%
Quizzes	30%
Participation	15%
Stata Project	20%

Regrading Policy

Regrading request must be sent via email within 72 hours of assignment grade release. This is a short course, so after 72 hours I will not be able to process any request.

Participation

Class attendance and participation is taken into account by student use of Poll Everywhere during class. 3 days of the lowest scores will not be used in final participation grade. Absences of lecture resulting in lack of poll everywhere answers can be for illness, internet problem, or personal reasons. After 3 "free" days, lack of answers will result in deduction of participation grade. Respectful questions and comments during course are encouraged. Each missed poll will result in a -4% to participation grade after the "free days."

If you miss class feel free to email me. If sickness persist please reach out and inform me. Please reach out to me, and I will work with you; I want you to be successful in this course!

Quizzes

Quizzes will be administered online via Sakai. There will be 5-6 quizzes during the course. The due date is before class on the date that is assigned on Sakai. The exact instructions to each quiz will be attached to each assignment. Late quizzes will not be accepted. Group work is encouraged, but each student must submit their own assignment for credit. The quizzes will not be timed.

Project

Students will be broken up into groups to complete a Stata project. This will display the students understanding of a statistical software program and their ability to write a model, interpret coefficients, and infer significance. Each group There will be 4 assignments that contribute to this grade. Only one member of the group must submit a copy of the assignment. Stata project will culminate in final written report due on the last day of class June 15, 2020.

Test

Test will be taken online via Sakai. A mid term and final exam will contribute to 35% of the student's final grade. These tests will be online and have a time limit once the test has started. Test will be administered during class time on the day set of the test. The final exam is scheduled via the university for June 17, 2020 at 8am -11am. The test will be open note, but conversing with other students or anyone other than yourself is against the honor code.

Extra Credit

A student may receive 3% on mid term and final by submitting a screenshot or photo upload of their study guide and formula sheet to Sakai the day of the test. This study guide can be typed or hand written but must be uploaded before the testing time interval has begun. Specifications of the study guide and extra credit will be given on Sakai.

Calendar

A tentative calendar of assignments looks as follows:
*The dates are subject to change as instructor sees fit.

Assignment	Date
Quiz 1	5/18 @9:40 am
Quiz 2	5/21 @9:40 am
Quiz 3	5/27 @9:40 am
Midterm Exam	5/29 @9
Quiz 4	6/4
Quiz 5	6/9
Quiz 6	6/15

Assignment	Date
Stata Project Report	6/15 @ 11:59 pm
Final Exam	6/17 @ 8-11 am

POLICIES

Academic Integrity

All students are expected to follow the guidelines of the UNC honor code. In particular, students are expected to refrain from “lying, cheating, or stealing” in the academic context. If you are unsure about which actions violate that honor code, please see me or consult honor.unc.edu.

Accessibility Resources and Services

UNC-Chapel Hill facilitates the implementation of reasonable accommodations for students with learning disabilities, physical disabilities, mental health struggles, chronic medical conditions, temporary disability, or pregnancy complications, all of which can impair student success. See the ARS website for contact and registration information: <https://ars.unc.edu/about-ars/contact-us>.

I do want to acknowledge that the pandemic which is causing us to move to remote learning is also causing anxiety, stress, and unforeseen burdens on people’s lives. Your well-being is of the utmost importance. Even remotely, you can take advantage of UNC-based resources through the Dean of Students’ Office and CAPS. I encourage you to use these when they may be of use to you.

Counseling and Psychological Services

CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services. Go to their website: <https://caps.unc.edu> to learn more.

Late Policy

Students are expected to turn assignments in on time. Late quizzes will not be accepted in this course. Late project submissions will have a grace period of 15 min, and then -5% deduction for each half hour it is late. Late test will not be accepted. If you have an internet problem while taking the exam, please take a picture with a time stamp and please email me immediately.

Note: If you are having reoccurring internet problems, then please see this site on guidance for off-campus internet service (https://help.unc.edu/sp?id=kb_article_view&sysparm_article=KB0010677&sys_kb_id=8ff8a9971b6b0054b7de21b5ec4bcb36) and let me know immediately by sending an email to me.

Missing Class and Illness

Students are not required to inform me of missing class days for personal or illness. Daily participation is taken, and the 3 lowest scored days will not count towards final grade. The missing of the 3 days can be for personal reasons, illness, internet disconnect, or other

reasons. If you miss more than the 3 days, your grade will reflect the absents. Homework, quizzes, and other assignments are expected to be completed before due date if absent or not. If you expect to miss class and assignments, please let me know ahead of time. If the mid term is missed the final will take on the weight of the mid term.

If illness persist or obstructs your ability to complete assignments, please reach out to me via email.

Syllabus Change

The instructor reserves the right to make changes to the syllabus, including project due dates and test dates. These changes will be announced as early as possible.

IMPORTANT UNIVERSITY DATES

- May 13, 2020 : First Day of Class
- May 15, 2020 : Last Day to Drop Class
- May 25, 2020: No Class- Memorial Day
- May 29, 2020: Last Day to Drop Class No Refund
- June 15, 2020: Last Day of Classes
- June 16, 2020: Reading Day
- June 17, 2020: Final 8-11 AM