



JONES COLLEGE OF BUSINESS

Course Syllabus

ECON 4620/5620 -- Econometrics and Forecasting

Professor:	E. Anthon Eff
Class:	BAS S324 • Monday and Wednesday 4:10 pm - 5:35 pm
Office and Hours:	BAS N308 • MW 2:30 pm-3:30 pm (or by appointment)
Phone:	615.898.2520 (ECFN main office); 615.898.2387 (my office phone)
Email:	Anthon.Eff@mtsu.edu
Course Website:	http://capone.mtsu.edu/eaeff/462/econometrics4620.html

What can this course do for you?

Econometrics encompasses the techniques economists use to conduct data analysis. These techniques are usually some variant of regression analysis, and they are used both to test hypotheses and to make predictions. Employers value the skills of econometricians, and these skills are an essential part of what today is called Data Science.

Econometrics is something that is actually done, not something simply read about. We will learn to do econometrics using R, an open-source statistical programming language. We will use R every class period, and for homework. I expect everyone to be proficient in R by the end of the semester.

This course has as its goal that each student successfully produce an empirical research paper, with econometric analysis performed in R. The paper will be due on Monday, December 11.

Grading.

- 10% of your semester grade will be based on quizzes given during the class period.
- 20% of your grade will be based on tasks performed by groups, each with two to six members. Most weeks, homework will be assigned, due the following class period. Each group turns in one set of answers. A peer assessment, conducted on Monday, December 11, will determine your group work grade.
- 20% of the grade will be based on the final exam—given Wednesday, December 6, 4:10 pm - 5:35 pm (the official last day of class). Questions on the final will resemble the homework assignments and the quizzes.
- 50% of your grade will be based on an individual term paper, which should be turned in and briefly presented to the class on Monday, December 11 (the official date of the final exam). The paper must follow the [format of an empirical paper in economics](#)¹ and you must use R to perform the analysis. You will be asked to submit a term paper proposal on Wednesday, October 11. Some suggestions and guidelines for the proposal [can be found at this link](#).²

¹ <http://capone.mtsu.edu/eaeff/462/http/term%20paper%20outline.docx>

² <http://capone.mtsu.edu/eaeff/462/http/Some%20ideas%20for%20term%20paper%20topics.pdf>

Materials.

R and Rstudio are free. You should download and install them on your own computers.

- [Download the latest version of R for your operating system](#)
- [Download RStudio \(pick the desktop free license\)](#)

I will put material on D2L and on the course website for you to read and use.

- Course Website: <http://capone.mtsu.edu/eaeff/462/econometrics4620.html>
- D2L link: <https://elearn.mtsu.edu/d2l/home/9263410>

I think everyone would benefit from having an econometrics textbook that they can refer to for instruction on the topics we will cover. Here are two that I can recommend.

- [Heiss' Using R for Introductory Econometrics](#) This book can be [read for free on the web](#), or [one can purchase a hard copy](#) for less than \$30. Here is a scan of [Chapter 1](#), which contains material that might be helpful the first couple of weeks in the course.
- [Woolridge's Introductory Econometrics](#) is a book that one can read on one's own and learn econometrics from. It is probably the most widely used econometrics textbook in first-year graduate courses. The book is not cheap, but I've heard that one can find a free pdf of an older edition on the web.

Artificial Intelligence

This course will be a good opportunity for you to use AI as a tool, both for creating code, and for writing drafts of your term paper. ChatGPT is free (<https://chat.openai.com/auth/login>), and it seems suitable for this course.

Topics.

There are fourteen weeks of class (excluding the final exam week). We will cover fifteen topic areas; some of these will take less than one week, others more than one week. On Wednesday, December 6, we will have our final exam. On Monday, December 11, term papers will be due.

1. Reading and writing data
2. Variable selection
3. Specification: dummy variables; interaction terms; polynomials
4. Data cleaning; modifying variables; estimating a model
5. Hypothesis tests
6. Multicollinearity
7. Monte-Carlo for omitted variable bias
8. Influential variables and observations
9. Cobb-Douglas Production Function
10. Heteroskedasticity
11. Endogeneity
12. Spatial Autocorrelation
13. Granger Causality
14. Temporal Autocorrelation
15. Forecasting

Mission of the Jones College of Business:

- Set our students' foundation for life-long learning through high quality learning experiences resulting from quality teaching, classroom interactions, student professional organizations, service learning, and interactions with faculty outside the classroom.
- Further the scope and dissemination of the body of business knowledge through scholarly research that advances our disciplines, enhances teaching/learning, and improves outcomes of for-profit, not-for-profit, and governmental organizations.
- Contribute to the economic development of the region through our outreach programs.

We will produce career-ready undergraduate students, MBA, MAcc, MS, and PhD graduates prepared for career challenges and advancements, significant applied research, and consulting consistent with the expertise of our disciplines.

Jones College of Business Student Learning Goals

- Students will be effective communicators.
- Students will be able to identify and understand the internal factors affecting businesses and their operations.
- Students will be able to identify and understand the external factors affecting businesses and their environment.
- Students will be skilled in the use of appropriate analytical and quantitative techniques in problem-solving and decision-making.

Professionalism

The Jones College of Business is a professional school. In the Jones College of Business, students will demonstrate Professionalism, which includes these behaviors:

- A solid work ethic demonstrated by preparation, punctuality, participation, and productivity;
- Respectful and courteous interaction with others;
- Ethical conduct; and
- Professional deportment highlighted by business-appropriate dress, diction, and demeanor.

As a Jones College student, part of your preparation for your future career includes the ability to adapt to the expectations of your supervisors and to manage your own expectations relative to your position within the organization. All Jones College faculty expect students to take this aspect of their preparation seriously. Following are my specific expectations of students related to Professionalism:

- You should attend every class. If you miss a class, you must obtain notes from another class member.
- You should spend at least as many hours on econometrics outside of class as you spend in class.
- You should contribute to group assignments. Do not free ride!
- You should turn in assignments on time.

Lottery Scholarship:

Do you have a lottery scholarship? To retain the Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 and 48 attempted hours and a cumulative TELS GPA of 3.0 thereafter. A grade of C, D, F, FA, or I in this class may negatively impact TELS eligibility. If you drop this class, withdraw, or if you stop attending this class you may lose eligibility for your lottery scholarship, and you will not be able to regain eligibility at a later time. For additional Lottery rules, please refer to your [Lottery Statement of Understanding form](#) or contact the [MT One Stop](#).

Tutoring:

Free tutoring is available in study skills, learning strategies and several courses such as biology, physics, history, computer information systems, math, psychology, economics, recording industry, and many more. The central location for tutoring is the Tutoring Spot, located in Walker Library. For available tutoring opportunities, including days, times, and location, visit [the tutoring website](#). You are encouraged to take advantage of this free service.

Reasonable Accommodations for Students with Disabilities:

Middle Tennessee State University is committed to campus access in accordance with Title II of the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act of 1973. Any student interested in reasonable accommodations can consult the [Disability & Access Center \(DAC\) website](#) and/or contact the DAC for assistance at 615-898-2783 or dacemail@mtsu.edu

Lauren's Promise

Lauren McCluskey, a 21-year-old honors student athlete, was murdered on Oct. 22, 2018, by a man she briefly dated on the University of Utah campus. We must all take actions to ensure that this never happens again.

I will listen and believe you if someone is threatening you.

If you are in immediate danger, call 911.

If you are experiencing sexual assault, domestic violence, and/or stalking, I hope you will feel comfortable contacting me and letting me help you get connected to campus resources.

If you prefer to reach out to these resources directly, you may contact these supports and services:

- MTSU Campus Police: 615-898-2424
- Murfreesboro Police: 615-893-1311
- MTSU Counseling Services: 615-898-2670
- After-hours mobile crisis: 800-704-2651 or go to the nearest emergency room
- MTSU Student Health: 615-898-2988

Any form of sexual harassment or violence will not be excused or tolerated and will be reported to MTSU's Title IX coordinators <https://www.mtsu.edu/titleix/> to assist you. For more information: <https://www.mtsu.edu/sexual-violence/>

Are You Registered to Vote?



Please check your registration, register for the first time, or re-register at your new address at [mtsu.edu/vote](https://www.mtsu.edu/vote).

Peer evaluation

The peer evaluation, filled out on December 11, will look like this (but with names from our class).

Your name: _____ Please rank yourself and your fellow students. Ranks run from 1 to 16: 1 would be the appropriate rank for the student that *helped you learn the most* in this class; 16 would be appropriate for the student whose presentations, assistance as group member, or discussion were *least* helpful. **No ties are allowed.** Please also put a letter grade next to the rank (pluses and minuses allowed).

For details on the methodology, please refer to <http://www.economics-finance.org/jefe/econ/Effpaper.pdf>.

Name	Rank	Letter Grade	Comments
Hector Guel			
Brandon Felder			
Richelle Pettigrew			
Glen Forest			
Bryant Crane			
Refugia Mendoza			
Chanda Barrick			
Sadie Torres			
Jennifer Gonzalez			
Randall Bedunah			
Francisco Cole			
Wendy Alwine			
Fabian Barnett			
Chastidy Edwards			
Kamran Tran			
Maria Esquivel			