

**Seminar in Quantitative Research Methods II**  
**POLS 5302 CRN: 25145**

Spring 2022

The University of Texas at El Paso

Tuesdays 6:00-8:50  
Physical Science Building 218

**Dr. Charles Boehmer**

**Contact Information and Office Hours:**

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**Office Hours:**

Wednesdays, 10:30-12:00  
and by appointment

**Course Overview and Goals**

The objective of this course is to deepen students' knowledge about quantitative data management and econometrics. A theoretical understanding of statistics is of limited use to social scientists or other analysts unless combined with an ability to apply such methods to data. Practical analytical skills are useful in many careers, including academia, public administration, business, etc. This course provides such skills. Pre-requirements for this course include an understanding of research design, univariate statistics, normal distributions, T-tests, Chi<sup>2</sup>, and correlation. This course will be taught with an emphasis on application; students will learn how and when to use certain research tools. The focus is on interpretation over mathematical theory. The main goal of this course is to expand students' analytical tool chests. Here are the basic goals and programmatic outcomes of this course:

1. Students will have working understanding of multiple regression analysis
2. Students will know how to use control variables and interaction terms

3. Students will learn how to diagnose and remedy the problems of autocorrelation, heteroscedasticity, and multicollinearity
4. Students will learn about the problem of missing data and solutions
5. Students will learn the basics of data management and statistical software
6. Students will learn how to apply econometrics in graduate level research projects
7. Students will be introduced to advanced topics of econometrics, such as count estimators, limited dependent variables, and duration/survival analysis

### **Student Evaluation**

Student performance will be evaluated based on various assignments and class participation. The final grade will be based on the following components:

- Midterm Exam: 15%
- Homework Assignments: 25%
- Research Project/Report: 25%
- Final Exam: 25%
- Participation through attendance and Q/A: 10%

**The Exams:** The exams will be in-class and test mastery of the subject matter. The format of the exams will vary and will include some of the following question formats: short-answer, multiple-choice, interpretation of results, short-essay, or practical tests using data and software.

**Homework Assignments:** These assignments will serve to help provide practical learning of econometrics and data management. Emphasis is on carrying out certain software commands and interpreting results. Students may discuss these assignments with each other, although the student work turned in to the instructor must be each student's individual work (separate log files and answers/interpretations are mandatory). You should also understand that too much reliance on classmates is counter-productive to performance on the exams.

**Research Paper/Report Project:** Student performance and learning will be evaluated in the quantitative research project that includes hypothesis-testing and some form of regression estimation analysis. More details will be provided during the semester. However, students may use either their own data or data obtained from existing research projects. The final paper will include a literature review, at least one hypothesis, a research design section, and a results section.

**Participation:** This course requires attendance in keeping with the policies of the College of Graduate Studies. Moreover, students will find that attendance and question answer sessions help guide student understanding through the leadings, which will show results in class assignments and exams.

Software: Lecture or instruction provided by the instructor will use the statistical software STATA. The reason for using this software is that it has become popular in certain research circles such as political science, economics, and the health sciences (especially epidemiology) and is comparable to SPSS (but quicker and more powerful). Learning multiple statistical software platforms is a professional asset. The library has this software on their computers, and there has been a virtual version available by UTEP through the web (but it can be tricky to use with files on flash drives and such). However, homework will be accepted in other software formats, such as SPSS and EViews as long as the same features are available. You may wish to purchase or lease a student version of STATA, but DO NOT BUY THE SMALL VERSION FOR THIS CLASS). Details describing these plans are available at this link below. We fall under the UT system on the list of institutions, not UTEP on its own. However, it appears that UTEP now provides the software for free:  
[https://www.utep.edu/technologysupport/ServiceCatalog/SOFTWARE\\_PAGES/soft\\_stat\\_a.html](https://www.utep.edu/technologysupport/ServiceCatalog/SOFTWARE_PAGES/soft_stat_a.html)

Purchasing a student version should allow you to work from home and to not rely on LACIT hours and conflicts with computers. Here is the description:  
<http://www.stata.com/order/schoollist.html>.

### **Dishonesty and Unethical Behavior: Plagiarism and Cheating**

I have had the unpleasant experience of catching numerous students engaging in plagiarism. Plagiarism is the use of other people's words, songs, ideas, images, or even sentence/paragraph structure without documentation or their consent. For the papers in this class, students must provide citation for passages in the text that are borrowed or inspired by other peoples' works. It is not hard to avoid plagiarizing -- if you use a quote from an author, acknowledge it in a footnote; if you paraphrase or summarize an argument, cite the source from where you obtained the idea. Often parenthetical citations are useful for this purpose. For example, one might write "One compelling reason why governments do what they do is that all people have goals, and they work to achieve those goals through political behavior. (Lowi, Ginsberg, and Shepsle 2002, p.14)", and then include the work in a bibliography or reference section at the end of your paper.

If you use facts or figures from a source and they are not common knowledge, note the source of the information. Copying and pasting in text from websites or other electronic documents is completely unacceptable unless you provide a reference, and even then, this may be a stylistic problem. If you directly borrow sentences, or even clauses or sentence fragments, these should be set-off in quotation marks and include a reference to the original source. If you are inspired to borrow the style, organization, or ideas of other person's work, you will still need to provide references to specific passages and bibliographical information. Most citation of material should be through paraphrasing, which is fine again as long as you note the source in the text.

It is unacceptable to include multiple paragraphs or long passages not set off as block quotes and then provide a single reference of the original source at the end. The goal of writing is to use primarily your own words and ideas. Other people's words should be used in

quotations as examples or evidence. Moreover, when students plagiarize it is often obvious to the instructor.

UTEP takes steps through the web and in University classes to inform students about plagiarism. Thus, it is your responsibility to avoid this behavior. I join the University in taking plagiarism very seriously. If caught plagiarizing, I will report you for college review and possible discipline. Similarly, all other forms of cheating are also dishonest and will not be acceptable.

### **Other Course Expectations, Policies, and Penalties**

Graduate education often requires a higher level of organization and commitment. I expect that you will attend every class session and turn in assignments on time. The penalty for late work will be twenty points a day. As mentioned herein, students should prepare for class each week, and nonattendance without some valid excuse constitutes a large reduction in participation points. Additionally, all papers and assignments need to be professional, meaning word-processed with standard citation and writing styles (one can review the APSA or APA guidelines), including page numbers, the use of headings/subheadings, etc. Additionally, the instructor will evaluate requests for an incomplete or withdrawal (after deadline) on a case-by-case basis but will generally be unwilling to grant such without some valid reason relating to the disruption of studies by forces not readily controllable by the student. **The student must document emergencies such as deaths in the family or illness.**

### **Disabilities and Accommodations**

**If you have a disability and need classroom accommodations**, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS [website](#). *CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.* The Student is responsible for presenting to the instructor any CASS accommodation letters and instructions before arrangements need to be made for exams, quizzes, or other needs.

### **Required Readings**

The following books have been ordered through the UTEP bookstore and will serve as the base readings for the entire semester.

- Multilevel and Longitudinal Modeling Using STATA, Volumes I & II. Rabe-Hesketh, Sophia, and Anders Skrondal. STATA Press. 2022
- Lewis-Beck, Colin, and Michael S. Lewis-Beck (2016). *Applied Regression: An Introduction, second edition*. Sage. (See online for free at [SAGE Research Methods Online \(SRMO\)](#) through library database available on web, if no longer available for free, then purchase online)

Optional but highly recommended, especially for those intending to master this material and go on to future statistical methods courses

- Baum, Christopher F. 2006. *An Introduction to Modern Econometrics Using Stata*. Stata Press.
- Acock, Alan C. 2006. *A Gentle Introduction to Stata*. College Station, TX: Stata Press.

### **Course Schedule of Readings and Assignments:**

***Week 1 (January 18): Introduction to class, variables and level of analysis, review of basic statistics, sampling, normal distributions/central tendency***

***Week 2 (January 25): Correlation Interpretation, Bivariate Regression Assumptions and Estimations***

- Lewis-Beck & Lewis Beck Chapter 1
- Rabe-Hesketh & Skrondal v1, Chapters 1 (11-27)

***Week 3 (February 1): Return to Regression Assumptions and Inferential Hypothesis Testing***

- Lewis-Beck & Lewis-Beck Chapter 2

***Week 4 (February 8): Multiple Regression***

- Lewis-Beck & Lewis-Beck Chapter 3 (up to page 55 and pp. 83-86)
- Rabe-Hesketh & Skrondal v1 (30-37)
- William D. Berry & Stanley Feldman, Multiple Regression in Practice
- [SAGE Research Methods Online \(SRMO\) The Multiple Regression Model: A Review](#)
- Networks of Hard International Law Based Organizations and Human Rights, 1980-2007, manuscript. Reid, Rebecca, Charles Boehmer, and Renato Corbetta

***Week 5 (February 15): Interaction Terms, Dummy Variables, and Nonlinearity – Estimation and Interpretation***

- Lewis-Beck & Lewis-Beck (pp. 64-73 and pp.83-96)
- Rabe-Hesketh & Skrondal v1, Chapters 1 (27-30, 38-63)
- Brambor, Clark, and Golder (2006) *Political Analysis*. Available at <http://pan.oxfordjournals.org/content/14/1/63.full>
- “On Economic Development and War.”, manuscript (Rafael Reuveny and Charles Boehmer)

***Week 6 (February 22): Data Management and Missing Data***

- Paul D. Allison, 2002, Missing Data, [SAGE Research Methods Online \(SRMO\)](#) (especially the sections of Introduction, Assumptions, Conventional Methods, Nonignorable Missing Data, and Conclusion <https://methods-sagepub-com.utep.idm.oclc.org/book/missing-data?fromsearch=true>)

- Boehmer, Jungblut, and Stoll, 2011 “Tradeoffs in Trade Data: Do Our Assumptions Affect Our Results?” *Conflict Management and Peace Science* (I will post a PDF of this paper)
- Due date for declaration of Research Project Topic

**Week 7 (March 1): Midterm Examination**

**Week 8 (March 8): Multicollinearity**

- Lewis-Beck & Lewis-Beck (pp. 75-83)

**Week 9 (March 22): Heteroscedasticity**

- William D. Berry & Stanley Feldman, Multiple Regression in Practice [SAGE Research Methods Online \(SRMO\), Heteroscedasticity and Autocorrelation](#)

**Week 10 (March 29): Research Design Types**

- Lecture

**Week 11 (April 5): Autocorrelation**

- William D. Berry & Stanley Feldman, Multiple Regression in Practice
- [SAGE Research Methods Online \(SRMO\), Heteroscedasticity and Autocorrelation](#)

**Week 12 (April 12): Panel Data**

- Rabe-Hesketh & Skrondal v1, Chapter 5 (focus on single-level)
- Beck, Nathaniel, and Jonathan N. Katz. “What to Do (and Not to Do) with Time-Series—Cross-Section Data,” *American Political Science Review*, Vol. 89 (1995), pp. 634-647. Available on JSTOR

**Week 13 (April 19): Limited and Count Dependent Variables**

- Rabe-Hesketh & Skrondal v2, chapter 10 (focus on sections 10.1 to 10.5, extlogit), Chapter 11 (focus on ologit), Chapter 12 (focus on multinomial logit command), Chapter 13 (focus on single-level poisson and negative binomial)
- Boehmer, Charles. 2010. “Economic Growth and Violent International Conflict: 1875-1999.” *Defense and Peace Economics* Vol. 21 (3): 249–268.
- Boehmer, Charles, and Sergio Peña. 2012. “The Determinants of Open and Closed Borders”. *Journal of Borderland Studies* 27 (3): 273-285.
- Boehmer, Charles. 2007. “The Effects of Economic Crisis, Domestic Discord, and State Efficacy on the Decision to Initiate Interstate Conflict” *Politics and Policy* 35 (4) December: 774-809.
- Boehmer, Charles, and Mark Daube. 2013. “The Curvilinear Effects of Economic Development on Domestic Terrorism.” *Peace Economics, Peace Science and Public Policy* 19 (3): 359-368.

***Week 14 (April 26): Survival and Duration Analysis***

- Rabe-Hesketh & Skrondal v2, chapters 14 and 15
- Beck, Nathaniel, and Jonathan N. Katz . “What to Do (and Not to Do) with Time-Series—Cross-Section Data,” *American Political Science Review*, Vol. 89 (1995), pp. 634-647. Available on JSTOR

***Week 15 (May 3): Spill-over lecture day, Semester Q/A***

Due date for Research Papers, at the start of class. Papers must be provided to the instructor in hard-copy form.

***FINAL EXAM (IN CLASS on May 10, 7:00 to 9:45)***