Applied Statistics for Public Administration
PAD 5351, Fall 2021
T 6-8 p.m., LART 403

Instructor: Carlos Olmedo, PhD
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Office Hours TBD

Course Objectives

This course is an advanced introduction to a range of quantitative tools pertinent to policy analysis and management. The primary emphasis is to foster analytic and critical thinking behind descriptive and inferential statistics. Upon successful completion of this course, students will be comfortable applying the logic and skills learned to policy relevant problems and decision-making. Graduate students who wish to continue polishing their skills will also be prepared to take further sections of more advanced empirical methods and foundations that are multidisciplinary in nature and applied across academic fields.

This course assumes that students have a basic familiarity with rudiments of probability (likelihood of events) and descriptive statistics (mean, median, mode, standard deviation, etc.), although an overview will be provided since they are the foundations to statistical inference and methods. It also assumes that students are comfortable with elementary algebra (at minimum know how to interpret a slope coefficient in a linear mathematical expression) and are able to work with symbolic notation (summation and product operators, subscripts, elements of the Greek alphabet, etc.).

The approach taken is more conceptual than that found in a typical introductory course in econometrics, but is complemented by an emphasis on applied statistical practice. The learning process in this course is driven by a combination of: 1) theoretical research foundations; 2) descriptive and regression estimation methods; and 3) database management and use of the *Stata* statistical software. Developing and managing datasets as well as learning spreadsheet and basic programming skills to conduct analysis will be a major component of this class.

Course Requirements

Students are responsible for material and content covered in class and are required to complete all assigned problem sets, presentations and readings, as well as actively participate in class discussions in a manner that is respectful. The University provides free student licenses of the Stata software; instruction will be provided during class on how to gain access. **Please switch your cell phone to vibrate or turn it off prior to the start of class and bring a laptop for in-class work.**

Late assignments will be downgraded automatically and make-up exams will not be allowed unless a valid reason is provided. Grading is based on each student's contribution to the course and quality of work in the following areas:

1

10% – Class participation
30% – Problem sets
30% – Exams
10% – Empirical research presentation
20% – Semester project presentation (develop database, hypothesis and statistical test/model)

Scholastic Dishonesty Policy

Students are expected to respect the University's standards regarding academic dishonesty. You owe it to yourself, your fellow students, and the institution to maintain the highest standards of integrity and ethical behavior. A discussion of academic integrity, including definitions of plagiarism and unauthorized collaboration, as well as helpful information on citations, note taking, and paraphrasing, can be found at the Office of Student Conduct and Conflict Resolution web page (https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html).

Students with Disabilities

The University provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Center for Accommodations and Support Services at 915-747-5148 (cass@utep.edu). Please communicate with me as soon as possible if you require disability accommodations.

Syllabus Disclaimer

The syllabus provides an outline of what will be covered in this course. It is subject to change in case of extenuating circumstances and according to the instructional needs and interests of the class. Any changes will be announced in class.

COVID-19 Precaution

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear facemasks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

Textbook

The class does not require a textbook. Lectures will be based on powerpoint content and selected readings organized around empirical research articles that students are expected to be able to summarize and interpret. It is through reflection on analytic articles that students will develop or strengthen their analytic skills as well as substantive understanding of statistical inference and regression logic.

Course Outline

Class 1: Research Methods Review (Aug. 24)

Class 2: Descriptive Statistics (Aug. 31)

Class 3: Descriptive Statistics in Stata (Sept. 7)

Class 4: Research Design, Sampling and Survey Types (Sept. 14)

Class 5: Normal Curve and Z-Scores (Sept. 21)

Class 6: Hypothesis and Significance (Sept. 28)

Class 7: Chi-Square Significance in Stata and Z-tests (Oct. 5)

Class 8: Z-tests continued and T-tests (Oct. 12)

Class 8: T-tests continued (Oct. 12)

Class 9: Linear Regression Fundamentals (Oct. 19)

Class 10: Univariate and Multivariate Regression using Stata (Oct. 26)

Class 11: Univariate and Multivariate Regression using continued (Nov. 2)

Class 12: Difference-in-Difference using Stata (Nov. 9)

Class 13: Categorical Regression using Stata (Nov. 16)

Class 14: Thanksgiving Holiday (Nov. 23)

Class 15: Regression Presentations (Nov. 30)

Class 16: Finals Week – Class Project Presentations (Dec. 7)