PPA207: Quantitative Methods

DTN 110, 6-8:50 pm, W (section 1), TH (section 2)

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Office hours: 4:30-6 pm on W/TH and by appointment

Course Description and Expectation

This course aims to help students write a regression-based paper in public policy and administration. The curriculum follows a three-phase structure: an overview of variables and descriptive statistics; simple and multiple linear regression analyses; and regressions with binary dependent variables. The course involves performing applied data analysis using STATA.

The course is cumulative. Students must come to class having mastered the materials from the previous week. Each student must review and replicate the STATA exercises and the statistical logic/concepts we learned before coming to class. Simply skimming the material or simulating the process in their head is not sufficient. You must physically run the models to ensure you understand the workflow.

Prerequisite: PPA 205

Learning Objectives

PPA Learning Objectives	How Applied to PPA207
1 f. Identify, critically examine, and use relevant data to inform policy and administrative decisions.	Practice navigating and identifying datasets that inform public policy and/or administrative issues; Learn how to use data that inform public policy and/or administrative issues
1 h. Critically review the literature to help understand and address a problem from various perspectives	Read empirical research and understand its design through literature review; Understand how public policy and/or managerial issues are developed as research questions and hypotheses
2 a. Critically use different analytical skills, processes, and tools to address policy and administration problems.	Learn the statistical knowledge and analytical skills that are necessary to run regressions on policy or administrative problems
2 d. Effectively communicate with different audiences to understand public problems and policy and administration strategies.	Present your regression-based research in class; share your topic with a non-statistical audience and be able to explain how public policy and administrative problems are addressed in your research.
2 e. Write clearly and succinctly as appropriate to various audiences	Write a regression-based paper and provide implications for various audiences.

Required Materials

- STATA Statistical Package: You will need a laptop, loaded with STATA and Excel from our second meeting, so please purchase the basic version of STATA (STATA/BE) for your own machine before the second class starts. Student prices are $48 for six months. https://www.stata.com/order/new/edu/profplus/student-pricing/
- This course does not require students to purchase textbooks. Supplemental reading materials will be available on Canvas.

Class Schedule

This schedule serves as a general guideline for the course. Depending on students' learning pace and progress, we may spend more time on a certain topic and less on another.

Date	Contents	What to Submit
Jan 28/29	Course Orientation and Getting Started	
Feb 4/5	Cleaning and Preparing Data	
Feb 11/12	Data Visualization	
Feb 18/19	Descriptive Statistics	Quiz 1
Feb 25/26	Regression I: Intro	
Mar 4/5	Regression II: Interaction Effect	
Mar 11/12	Regression III: Multicollinearity & Heteroscedasticity	
Mar 18/19	Practicing Regression Analyses	Quiz 2
Mar 25/26	Spring Break	
Apr 1/2	Logistic Regression I: Intro	Summary Stat Table
Apr 8/9	Logistic Regression II: Odds Ratio	
Apr 15/16	Practicing Logistic Regression	Quiz 3
Apr 22/23	Project Assistance and Peer Review	Draft/Peer Review
Apr 29/30	Presentation & Discussion I	
May 6/7	Presentation & Discussion II	
May 13/14	Final Paper Due	Final Paper

Grading

- Etiquette 5%
- Class Preparation & Participation 5%
- Three Quizzes 45% (15 each)
- Individual Research 45%
    - Summary Stat Table 5%
    - Presentation 15%
    - Peer Feeback 5%
    - Final Paper 20%

A 94-100% A- 90-93%
B+ 87-89% B 84-86% B- 80-83%
C+ 77-79% C 74-76% C- 70-73%

1. Etiquette (5%)

Students are expected to adhere to the following etiquette standards to maintain a focused and respectful learning environment. For example, this class requires you to listen carefully to others' questions. Their questions often address challenges you may also encounter later. If you are not paying attention, you will miss the transition and the new content being taught. Side conversations will disrupt the entire learning environment. Moreover, laptop use should pertain to class exercises and note-taking only. Using cell phones or laptops for non-course-relevant purposes will hinder your learning.

2. Class Preparation & Participation (5%)

Preparation consists of two primary components. First, everyone must review and replicate what they learned last week. You should be able to run the previous week's models independently before the new session begins. This ensures that when we move into new content, the entire class transitions together successfully. Second, some weeks will have supplementary readings to deepen your understanding of the concept. These must be read before coming to class. Class participation is evaluated based on your active engagement in explaining what you read from the supplementary materials and active participation in any type of class activities.

3. Three Quizzes (15% each)

This course culminates in a regression-based research paper; every class time is designed to build toward that goal. Because writing the paper requires a step-by-step application of statistical logic, students must come to class having mastered the materials from the previous week.

To make this accountable, there are three cumulative quizzes that serve as benchmarks for your progress during class hours on February 18/19, March 18/19, and April 15/16. These are designed to evaluate your understanding of the class contents and concepts, and your proficiency in running regression analyses, rather than your memory. Therefore, all quizzes will be open-book. Feel free to use class slides or any physical or digital notes you have prepared. However, using AI tools or browsing the internet is prohibited**.** Anyone found using these resources will automatically receive a grade of zero.

4. Research Project (45%)

The capstone of this course is to present and write a regression-based research paper. Students will explore public policy or administrative problems of interest, select one topic, find their own dataset, and apply the statistical techniques mastered throughout the semester to analyze it.

Before presentation weeks, we will have time to read and provide written peer feedback on two of your colleagues' first drafts, focusing on suggestions for improvement. At the end of the semester, students will present their regression papers individually. Class presentations are not evaluated on speaking skills, but focus on the quality, accuracy, and rigor of the content and analyses. Detailed instructions and the grading rubric will be available on Canvas.

Summary Statistics Table 5% (due April 1/2)
Peer Review 5%
Presentations 15%
Final Paper 20% (due May 13/14)

Class Attendance and Absence

I believe the best way to learn applied quantitative analysis is to attend in person and receive real-time feedback on Stata from your classmates and me. Thus, class attendance is the most basic component of the class and a powerful predictor of student performance.

If you cannot attend the class, come to the meeting on a different night that week. If this does not work for you, make sure to review the missed contents (slides, any assigned readings, and/or your classmates' notes) and check with me via email/office hours if you have any questions or need clarification.

Academic Honesty and AI

Students should familiarize themselves with the University Honor Code and Academic Honesty Policy, particularly as it relates to plagiarism and related concerns. The Student Code of Conduct defines academic misconduct, non-academic misconduct, and the consequences or penalties for each. Please check the website: https://www.csus.edu/student-affairs/student-conduct/academicdishonesty.html. Academic dishonesty can result in an F grade in the course.

The department policy on the use of AI allows each faculty member to decide on what appropriate use looks like. In this course, all submitted work must be original and produced by the student. The goal of this course is for you to develop the skills to read and write a regression-based paper independently. Therefore, any of the following is considered inappropriate and will result in a grade of zero for that assignment, with no exception:

- Fabricate Citations: submitted material that includes fake or hallucinated academic citations
- Inaccurate Summaries: submitted material that includes inaccurate summaries of the article
- Unearned STATA Mastery: submitted material that used the STATA codes not taught in this class, without being able to explain what they mean.

Submission Policy

Late submission is not accepted. Students are responsible for all announced deadlines, even if they are unable to attend class. To manage your time effectively, use **backward planning**—start with the deadline and work backward to determine when you must begin your browsing or drafting. This ensures that even if a sudden event occurs the day before the deadline, your work is already in the final review stage.

To ensure fairness for all students working during the daytime, the instructor will not reply to any email requesting "simple" deadline extensions. Deadline extensions are only allowed for extreme emergencies or challenges that affect students' entire coursework, not just this course. Any such request must be officially made in advance of the deadline.

Emails and Academic Support

I am willing to meet with students who are concerned about class assignments throughout the course. If you have any difficulties, do not hesitate to reach out to me. I encourage you to reach out early rather than waiting until a quiz or the final paper deadline. Questions about the class contents or other assignments can be directed to me via email. I will do my best to reply to your email within 24 to 48 hours during the workweek.

Student with Disabilities

Sections 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADA) address issues related to disability and accommodations. Students with disabilities that could affect their ability to participate in the course or perform well on graded assignments should see me early in the semester. I am receptive to these situations and will try to make any reasonable accommodation. If a student has questions or needs accommodation in the classroom (all medical information is treated confidentially), please contact:
Services for Students with Disabilities
Division of Student Affairs
(916)-278-6955, sswd@csus.edu.