

## PPA207: Quantitative Methods

DTN 110, 6:00-8:50 pm, W (Section 1) or Th (Section 2)

Instructor: Ahrum Chang, Ph.D.

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Office hours: DTN 230, 4:30-6 pm on Wednesdays and Thursdays and by appointment

### Course Description

This course aims to expand students' understanding of the statistical knowledge and technique used in public policy and administration research. This course (1) begins with an overview of variables, measurement, hypotheses, and descriptive statistics, (2) introduces an elementary linear regression analysis (OLS estimation), and (3) finishes with the regression with binary dependent variables. The course will involve performing applied data analysis using STATA.

Prerequisite: PPA 205 with a B- or better

### Learning Objectives

This course addresses five learning objectives from those set for the MPPA program. The following table shows the five objectives applicable to PPA207 and the way they are applied to this course. The attainment of these objectives will occur when students complete their in-person attendance and get real-time feedback from their peers and an instructor each week.

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 research design; 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 how to use STATA; Learn the statistical knowledge and analytical skills that are necessary to run a regression on policy and administration 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	Practice writing 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. Prices for students are \$48 for six months. Please visit: <https://www.stata.com/order/new/edu/profplus/student-pricing/> If you have any questions on purchasing or installing this software, let me know in our first meeting.
- This course does not require students to purchase any textbook. However, students are expected to read some uploaded reading materials before coming to week 2, 3, 4, 6, 7, and 9. All reading materials will be brief and will be available on Canvas.

## Class Schedule

This schedule will serve as a general guideline for the course, not a rigid constraint throughout the semester. Depending on class needs or my discretion, we may spend more time on a certain topic and less on another. Any changes to the syllabus or course schedule will be announced in advance.

Week	Date	Course Contents	Uploaded Readings	Weekly Review for Previous Contents
1	Jan 22 or 23	Course Orientation & Overview		
2	Jan 29 or 30	Getting Started: Measurement & Variables	O	
3	Feb 5 or 6	Cleaning and preparing data	O	O
4	Feb 12 or 13	Descriptive statistics	O	O
5	Feb 19 or 20	Data visualization		O
6	Feb 26 or 27	Causal analysis	O	O
7	Mar 5 or 6	Regression I: Intro	O	O
8	Mar 12 or 13	Regression II: Interaction effects		O
9	Mar 19 or 20	Regression III: Multicollinearity & heteroscedasticity	O	O
10	Mar 26 or 27	Midterm Exam		
11	Apr 2 or 3	Spring Break		
12	Apr 9 or 10	Logistic Regression I		
13	Apr 16 or 17	Logistic Regression II		O
14	Apr 23 or 24	Tips for Quantitative Research & Project Assistance		O
15	Apr 30 or May 1	Presentation & Discussion I		
16	May 7 or 8	Presentation & Discussion II		

Note: Circles in the right two columns indicate what you need to prepare or submit to Canvas before coming to class.

## Evaluation

Course grades will be determined by the following weights:

- Class Participation 10%
- Weekly Review Assignments 20%
- Midterm Exam 30%

- Research Project 40%
  - Topic Proposal 10%
  - Presentation & Peer Feedback 10%
  - 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%  
 D+ 67-69% D 64-66% D- 60-63%

### 1. Class Participation (10pts)

Each class is an opportunity to engage with the material we explore. Active class participation is crucial because it is an important avenue for learning. After course orientation, students need to bring their laptops to participate in the STATA exercise. Students are expected to contribute to the class discussion on assigned readings or small group activities.

### 2. Weekly Review Assignments (20pts)

After each class, students need to review and practice what they newly learned to move forward. This includes going over slides, performing in-class STATA exercises on your own, and writing down the definitions of key concepts in your language. It aims to help you double-check whether you digest each class content after the class and keep you on track throughout the semester. Also, it helps you identify where you are lost and ask me questions before moving forward.

My grade is simply based on whether you review/practice the class materials/exercises (2pts for each). Given the purpose of this assignment, I will not check whether your review contains every single item and exercise that is covered in class. Suppose you are already familiar with using STATA or feel that reviewing every in-class exercise is redundant and not helpful. In that case, you may either select the ones that you newly get to know and practice them only or do the whole exercises using different variables. Therefore, how much you will review after each class is totally up to you. Likewise, if you already know concepts and feel redundant, you do not need to include them in your review. But it is your responsibility to digest what is not included.

Please submit what you reviewed for each meeting after the next class starts. The assignment will start from reviewing the second meeting contents, which means your first submission of this assignment is due 6pm on the third meeting (Feb 5 for W section and Feb 6 for Th section). There will be nine weekly reviews throughout the semester. Details and formats will be announced in the course orientation.

### 3. Midterm Exam (30pts)

There will be a cumulative exam on week 10 (March 26 for W section and 27 for Th section). This will be an open-book exam. It is not a test of your memory but of your understanding of the class contents/concepts and running regression analyses. Those who attend each class and complete the weekly reviews will get the full points. Your weekly reviews will be a great source to prepare for this exam.

#### 4. Research Project (40pts)

- ◆ **Topic Proposal:** Students will explore multiple public policy/administrative problems of interest and select one topic based on their interests. In their topic proposal, students should clearly define their research questions, and what variables they would use for their explained and explanatory variables. I will provide a specific form for this assignment, and you can fill out each item and submit it by March 7 for the W section and 8 for Th section. Yet, the form will be provided at Canvas after week 4 and I will open the submission window at Canvas, so those ready and want to determine their topic early can submit this after week 4.
- ◆ **Presentation & Peer Feedback:** Students will individually present their regression paper either in week 15 or 16 and get verbal feedback from each other.
- ◆ **Final Paper:** The final assignment is to write a regression-based research paper. Detailed instructions and the grading rubric will be available at Canvas. This is due May 12 for W section and 13 for Th section.

#### **Class Attendance and Absence**

Class attendance is the most basic component of the class and a powerful predictor of student performance. If you must miss the class and are available, please come to the meeting held on a different night in the same week. If this does not work for you, please scan the missed contents (uploaded slides, readings, and/or your classmates' notes) and check with me during my office hours or email me to ask any questions.

I am glad to assist students with questions or clarification regarding class materials. However, you are responsible for all assigned materials, even if you are unable to attend the class. This means I encourage you to scan the slides and read the reading materials for your missed class before checking with me.

#### **Submission Policy**

Your weekly assignments, topic proposal, and final paper must be completed on time. Late submission is not accepted. Please submit all these assignments electronically to Canvas by each deadline. Even if you are unable to attend the class, you are responsible for all deadlines posted on this syllabus or Canvas.

#### **Academic Honesty**

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 a grade of F for the course.

In this course, students are permitted to use AI-based tools, but all work submitted must be your own. Please note that it is your responsibility to ensure the information you use from AI is accurate and properly cited.

### **Electronic Devices**

Laptop use should pertain to class exercises and note-taking only. Please refrain from using cell phones, laptops, or any other electronic devices to check emails, send messages, or browse non-course-relevant information. I expect a high level of courtesy and professionalism in the classroom.

### **Emails and Academic Support**

I am always willing to meet students concerned about class assignments or STATA exercises throughout the course. If you experience some difficulties for any reason, please do not hesitate to let me know. Questions about the course 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**

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADA) covers issues relating 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 accommodations. If a student has questions or needs an 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](mailto:sswd@csus.edu).