PUBPOL 528 C: Quantitative Analysis II
Spring 2019

Instructor: Sarah Charnes
Email: spaisner@uw.edu
Office Hours: Wednesdays, 4:30 PM – 6:30 PM (and by appointment)
Office Hours Location: CDH 315

Lecture Meeting Time: Thursdays, 5:30 PM – 8:20 PM
Lecture Location: CDH 135

Quiz Section CA Meeting Time: Mondays, 2:30 PM – 3:20 PM
Quiz Section CA Location: CDH 110B

Quiz Section CB Meeting Time: Tuesdays, 4:30 PM – 5:20 PM
Quiz Section CB Location: CDH 110B

Teaching Assistant: Bridget Boyle
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Office Hours: Mondays, 3:30 PM – 5:30 PM; Thursdays, 10:00 AM – 12:00 PM (and by appointment)
Office Hours Location: CDH 313

Textbook: A.H. Studenmund, *Using Econometrics: A Practical Guide*, 7th Edition (7th edition strongly preferred). Additional readings will be provided via Canvas.

Website: https://canvas.uw.edu/courses/1274787
Course Listserv: pubpol528c_sp19@uw.edu. Please note that we may contact you via email OR via Canvas announcements. Please ensure that you are regularly checking your email and that you are receiving real-time Canvas notifications. You are responsible for keeping up to date with anything that we communicate to you through either mode.

Course Objectives

The goals of this course are to deepen your understanding of regression analysis and statistical modeling, and to develop your skills in applying these techniques to public policy and management issues. We will focus upon choosing an appropriate statistical framework for a particular question, estimating the relationship between multiple factors and an outcome of interest, and determining when and why statistical estimates can be interpreted as "causal." Real-world data will be used in most applications. Your aim should be to develop an understanding of both the underlying statistical theory and the practical applications of the course material.

In recent years, public discourse in many policy arenas has become increasingly focused upon evidence-based policy design and quantitative analysis. A mastery of basic multiple regression analysis and causal inference, and a firm understanding of how to apply these concepts to real-

world problems, are essential for your forward progress, both in the MPA program and in your careers to follow.

In other words, my goal is for you to leave this course feeling like a savvy <u>consumer</u> of regression analysis – even if you do not consider yourself to be quantitatively-inclined. I truly believe that everyone can find a way to both grasp and appreciate the material covered in this course. I also hope that we will have fun together and learn from one another along the way. Should you wish to become a <u>producer</u> of regression analysis, my goal is for you to leave this class feeling equipped to take optional quantitative classes next year and beyond, such as PUBPOL 529: Advanced Quantitative Methods for Policy Analysis. There are additional quantitative courses on campus that MPA students have taken in the past, such as those offered by the UW's Center for Statistics and the Social Sciences. Please feel free to consult with me regarding a path forward should you wish to continue learning about regression analysis.

Software

We will use Stata for all homework and data-related assignments in this course. I presume that your experience is limited to that which was taught in PUBPOL 527 (i.e., using Stata's drop-down menus). In PUBPOL 528, we will make the transition to executing Stata commands through statistical code using Stata's "do-files." Stata has powerful features that you will be able to use beyond this course, even if you do not pursue regression analysis any further. You will primarily learn how to use do-files in your weekly quiz sections. As was the case in PUBPOL 527, you can access Stata through the remote terminal server hosted by the UW's Center for Studies in Demography and Ecology (CSDE; instructions sent via email in mid-March; also available on our course's Canvas site). You may instead purchase a copy of Stata for your own computer if you would like ("Stata/IC" is available for students at a reduced rate of $45 for a six-month license; please visit https://www.stata.com/news/student-pricing/). Excel may be useful for some of the assignments and for data manipulation.

Prerequisites

This course is open to Evans School MPA students who have successfully completed or waived PUBPOL 527. Substitute pre-requisites from students outside of the Evans School will be considered on a case-by-case basis.

Readings and Additional Materials

The table below provides the textbook reading schedule for the course. While the material in the lectures, quiz sections, and problem sets will be your best guide as to what will appear on exams, all of the material in the assigned readings will be fair game for the exams. I am likely to provide you with supplemental materials (such as handouts) throughout the quarter to enhance your learning. Furthermore, I will provide supplemental readings to you as the course progresses, which will be posted to Canvas. You should be prepared to discuss supplemental readings as a class or in small groups during lectures. We will rely more heavily upon supplemental readings when we cover causal inference during the final portion of the course, as Studenmund's coverage of this topic is limited.

Grading and Assignments

Your grade in this course will be based upon five homework assignments, one in-class midterm exam, one written memo assignment, one take-home data analysis exam, and one in-class final exam. Due dates and exam dates are posted on the timeline below. **Late work will not be accepted.** The midterm and final exams will be closed-book, but you will be allowed to use two pages (four sides) of your own notes.

Each of the five homework assignments will be posted approximately one week before they are due, if not earlier. Group work pertaining to the five homework assignments is allowed and encouraged. However, working through the homework assignments on your own is **essential** for doing well in this course. If you choose to work with others, you **must** generate and submit your own answers in order to receive credit. The five homework assignments are intended to help you 1) learn how to manipulate data and conduct regression analysis in Stata using do-files, and 2) understand the conceptual elements of the course. Homework assignments will be graded for completion and timeliness; however, you must show your work and attempt every portion of the assignment in order to receive full credit (compared to partial credit or no credit). Answer keys will be posted shortly after the due date/time; it is your responsibility to understand the answer keys (including any discrepancies between your submissions and the answer keys).

The written memo assignment (in which you will summarize the findings of a research article for a non-technical audience) will be graded for accuracy, coherence, readability, and professionalism.

The take-home data analysis exam will be graded for accuracy. The data analysis exam is intended to assess your proficiency with skills learned in Stata throughout the quarter. Therefore, you may **not** work with others on the data analysis exam, and Bridget will not be able to answer specific questions about the exam.

Your final grade in this course will be based on the following:

Homework Assignments (5 @ 2% each)	**10% of final grade**
Midterm Exam (May 2, 5:30 PM – 7:00 PM, CDH 135)	**25% of final grade**
Memo Assignment (due May 26 at 11:59 PM)	**10% of final grade**
Data Analysis Exam (take-home, due June 9 at 11:59 PM)	**25% of final grade**
Final Exam (June 11, 6:30 PM – 8:20 PM, CDH 135)	**30% of final grade**

The components listed above will not be curved individually, but I will curve your final scores if necessary. My goal will be to ensure that the distribution of grades is roughly similar to the recent historical distribution of grades in PUBPOL 528.

Tips for Success

Multiple regression and causal inference for public policy and management is not a spectator sport. We will cover a lot of material over the span of a short ten weeks, and you will have other Evans School core courses competing for your time. To ensure your success in this course, you should plan to attend all lectures and quiz sections, attempt every homework assignment, take the time to understand all answer keys and in-class examples, attend office hours, and dedicate a consistent amount of time to studying each week. It is often helpful to study in groups and practice teaching concepts to one another: explaining/articulating something to someone else is one of the best ways to learn!

Academic Integrity

The University of Washington and the Evans School of Public Policy and Governance expect students to adhere to the highest standards of academic integrity and honesty. A student who is found to be cheating on an assignment or an exam will receive a zero for that assignment or exam. A second offense will lead to a zero in the course.

Enrollment, Attendance, and Absences

Please check the University Calendar for the policy on incompletes and withdrawals; we will adhere to the University's dates and policies. If you are going to miss a class, please speak with a classmate beforehand and arrange to get a copy of their notes. Offices hours are not intended as a time to repeat material because of a class absence.

If an emergency prevents you from taking the in-class midterm or in-class final exam, you must contact me via email prior to the exam and provide documentation. Typically, an "emergency" is a sickness or injury, as opposed to a work or personal commitment.

If you know now that you cannot take an in-class exam at the scheduled time, please contact me as early as possible to discuss. Students who have a scheduling conflict for either exam and fail to contact/discuss with me beforehand will be given a zero for the exam and will forfeit the right to a make-up exam.

If you need to leave class early, please notify me before class and choose a seat near one of the exits. We will have periodic stretch breaks during lecture; please do not leave the room during those. (We will take one longer break halfway through every lecture, during which you may absolutely leave the room!) While lectures or quiz sections are in session, please keep side conversations to a minimum, as they are distracting to me, Bridget, and your colleagues.

Special Accommodations

If you have an arrangement with the University of Washington's Disability Resources for Students (DRS) for exam accommodations, please email me after the first class so that we can set up a meeting and discuss the best way to ensure that your accommodations are met.

Community Conversation Norms

Although PUBPOL 528 is primarily a quantitative, lecture-based course, I tend to teach in a conversational style, and will periodically ask you to partake in small-group and/or full-class discussions. Throughout the entirety of the course, we will adhere to the Evans School's community conversation norms:

> At the Evans School, we value the richness of our differences and how they can greatly enhance our conversations and learning. As a professional school, we also have a responsibility to communicate with each other – inside and outside of the classroom – in a manner consistent with conduct in today's increasingly diverse places of work. We hold ourselves individually and collectively responsible for our communication by:
> - Listening carefully and respectfully
> - Sharing and teaching each other generously
> - Clarifying the intent and impact of our comments
> - Giving and receiving feedback in a "relationship-building" manner
> - Working together to expand our knowledge by using high standards for evidence and analysis

Communication

Bridget and I want you to succeed in this course, so we will be as available as possible to answer your questions and support your progress. That said, here are a few rules to help us organize communication:
- The best ways to contact me are in office hours, before/after class, or over email. I cannot guarantee a response to Canvas messages. I am able to answer most questions over email. Please be as specific as possible when sending questions via email so that I can answer you in an efficient manner.
- If you email me, I will get back to you within 48 hours at the very latest. (That said, I batch my email responses and typically respond well within 24 hours.)
- For the sake of honing professional communication skills (which will serve you well once you graduate from this program), I prefer to send and receive emails that contain greetings that include the name(s) of the recipient(s), and a signature with the name(s) of the sender(s) – at least, at the start of an email thread.

Course Schedule

All dates other than the in-class exams and take-home data analysis exam are subject to revision. General lecture topics are also subject to revision. However, I will do my best to avoid making

any sweeping changes. Assigned readings should be completed prior to class meetings. Additional non-textbook readings will be provided via Canvas as the quarter proceeds.

Week #	Class Date	General Topics and Important Events	Readings
1	4/4	Overview; Transitioning from 527 to 528; Intro to Causality	
2	4/11	Introduction to Ordinary Least Squares **HW 1 due Sunday, April 14 at 11:59 PM**	Ch. 1 and 2
3	4/18	Using Regression Analysis; The Classical Model **HW 2 due Sunday, April 21 at 11:59 PM**	Ch. 3-5
4	4/25	Dummy Variables and Interaction Terms; Hypothesis Testing **HW 3 due Sunday, April 28 at 11:59 PM**	Ch. 3-5
5	5/2	**Midterm Exam (first half of class)** Violations of Classical Assumptions (second half of class)	Ch. 6 and 7
6	5/9	Violations of Classical Assumptions, Continued **HW 4 due Sunday, May 12 at 11:59 PM**	Ch. 8 and 10; skim Ch. 9
7	5/16	Dummy Dependent Variables **HW 5 due Sunday, May 19 at 11:59 PM**	Ch. 13
8	5/23	Introduction to Causal Inference **Memo due Sunday, May 26 at 11:59 PM**	Ch. 14
9	5/30	Causal Inference, Continued	TBA
10	6/6	Causal Inference, Running a Regression Project, and Course Wrap-Up	Ch. 15; TBA
Final Exams		1) **Take-Home Data Analysis Exam due Sunday, June 9 at 11:59 PM** 2) **Final exam in CDH 135 on Tuesday, June 11, 6:30 PM – 8:20 PM**	

Note: Quiz sections will not meet during Week 9 due to Memorial Day, which falls on Monday, May 27. Instead, I will provide you with a Panopto recording or other material(s) pertaining to causal inference (which will be fair game for the final exam).