



**Public Affairs 819: Advanced Statistical Methods for Public Policy Analysis  
Spring 2023 (3 units)**

MW 11AM-12:15PM, INGRAHAM 224 or (some W) SOCIAL SCIENCES 3218 [LECTURE]  
FR 9:55AM-10:45AM STERLING 2335 [SECTION]  
FR 11:00AM-11:50AM STERLING 2335 [SECTION]

This class meets for two 75-minute class periods each week over the spring semester and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc.) for about 3 hours out of classroom for every class period

Course website for restricted material via <https://canvas.wisc.edu>

Course website – unrestricted material: [http://www.ssc.wisc.edu/~mchinn/web819\\_s23.html](http://www.ssc.wisc.edu/~mchinn/web819_s23.html)

**INSTRUCTOR**

Professor Menzie Chinn  
OH: TBA  
Social Sciences 7418  
Tel: (608) 262-7397  
Email: [mchinn@lafollette.wisc.edu](mailto:mchinn@lafollette.wisc.edu)

**TEACHING ASSISTANT**

Ms. Itzel De Haro Lopez  
OH: TBA  
221 Taylor Hall  
Email: [deharolopez@wisc.edu](mailto:deharolopez@wisc.edu)

**COURSE DESCRIPTION**

The purpose of this course is to equip students with the tools necessary to tackle issues that involve the empirical analysis of public policy problems of the sort they might encounter in a professional environment. Specifically, the course introduces students to the use of multiple regression analysis for analyzing data. The emphasis is on empirical applications.

The course is designed with twin objectives in mind. The first is to provide students with the ability to analyze critically empirical analysis done by others at a level sufficient to make

intelligent decisions about how to use that analysis in the design of public policy. The second is to provide students with the skills necessary to perform empirical policy analysis on their own or to participate on a team involved in such an empirical analysis. An important segment of the course focuses on program evaluation. This includes both the design and analysis of experiments that aim at measuring policy effectiveness and the use of non-experimental data to evaluate policy effectiveness.

Requisites: Public Affairs 818 and 880.

## LEARNING OUTCOMES

- Knowledge
  - Students will demonstrate understanding of the statistical underpinning of regression analysis, be cognizant of pitfalls in estimation, and be able to interpret the empirical results.
  - Students will demonstrate critical thinking skills. They will be able to critique empirical results reported in the policy literature.
- Applied Research
  - Students will implement and interpret econometric analyses using Stata.
  - Students will effectively motivate and explain empirical analyses for a policy audience.
- Communication
  - Students will communicate in clear written language: how econometric results inform a real-world policy problem.
  - Students will communicate orally the substance of empirical results in language understandable to a non-specialist.

## GRADING

- Problem Sets 12%
- Quiz 8%
- Midterm Exam 1 30%
- Group Exercise 15%
- Midterm Exam 2 35%
- Final grade is based on curve of final aggregate scores
- Attendance and class participation (aside from Group Exercise) are not part of the grading

## REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

- Stock, J. and Watson, M., *Introduction to Econometrics*, 4th edition. Pearson (2019) (Students may use the 2<sup>nd</sup> or 3<sup>rd</sup> edition, if they wish) Other required materials listed below under schedule.
- Stata will be used in the course. If you do not have the software from PubAffr 818, you may download from <https://it.wisc.edu/services/software/>

## EXAMS, QUIZZES & OTHER MAJOR GRADED WORK

- Midterm exams on 3/27, 5/3.
- Exams and quizzes are in-class, closed-book, no calculators, cumulative. You will be provided with formulas.
- No make-up exams; missed exam points will be apportioned to other components of the grade (with approved excuse).

## PROBLEM SETS

- You may work in groups of up to three people on the problem sets. All answers must be written up individually, in your own words, reflecting your own understanding of the material. Please list the names of your study group members on your problem set.
- Problem sets (denoted **PS** in schedule) are to be submitted in lecture, on indicated dates.

## SCHEDULE/READINGS

*Note: All reading assignments under TEXT are in Stock and Watson, 4<sup>th</sup> Ed. unless otherwise noted. Chapter in previous editions are numbered slightly differently, so use care.*

<b>LEC.</b>	<b>DATE</b>	<b>TEXT</b>	<b>READING</b>	<b>TOPICS</b>
1	1/25	1-3		Introduction/Review of statistics
2	1/30	4.1-4.6		Bivariate regression I
3	2/1	5.1-5.6		Bivariate regression II
4	2/6	6.1-6.3		Multiple regression I; <b>PS1 due</b>
5	2/8	6.5-6.8		Multiple regression II
6	2/13	7.1-7.4		Tests of joint hypotheses; <b>PS2 due</b>
7	2/15	5.3		<b>In-class QUIZ</b> ; dummy variables
8	2/20	8		Dummy variable interactions
9	2/22	8		Nonlinear relationships I
10	2/27	8		Nonlinear relationships II; <b>PS3 due</b>
11	3/1	11.1-11.2		Binary dependent variables I
12	3/6	11.3-11.5		Binary dependent variables II
13	3/8			Omitted variables & endogeneity
14	3/20	9.1-9.5		External and internal validity
15	3/22	13.1, 13.3	Krueger	Program Eval'n I: Randomized controlled tests

<b>16</b>	<b>3/27</b>			<b>MIDTERM EXAM 1</b>
17	3/29	13.2		Program Eval'n II: Problems with randomized tests; <b>PS4 due</b>
18	4/3	13.4-13.7	CK	Program Eval'n III: Differences-in-differences, natural experiments
19	4/5	10		Panel Data I
20	4/10	10		Panel Data II
21	4/12	12.1		Instrumental Variables I; <b>PS5 due</b>
22	4/17	12.2-12.6		Instrumental Variables II
23	4/19			Small group meetings for Final Exercise
24	4/24			Tobit
<b>25</b>	<b>4/26</b>			<b>GROUP PRESENTATIONS OF FINAL EXERCISE</b>
26	5/1			Review; <b>PS6 due</b>
<b>27</b>	<b>5/3</b>			<b>MIDTERM EXAM 2</b>

**Krueger** Krueger, Alan (1999), "Experimental Estimates of Educational Production Functions", *Quarterly Journal of Economics* 114(2), pp.497-532.

**CK** David Card, Alan B. Krueger (1994) "Minimum Wages and Employment," *The American Economic Review* 84(4), pp. 772-793.

### Misconduct Statement

Academic Integrity is critical to maintaining fair and knowledge based learning at UW Madison. Academic dishonesty is a serious violation: it undermines the bonds of trust and honesty between members of our academic community, degrades the value of your degree and defrauds those who may eventually depend upon your knowledge and integrity.

Examples of academic misconduct include, but are not limited to: cheating on an examination (copying from another student's paper, referring to materials on the exam other than those explicitly permitted, continuing to work on an exam after the time has expired, turning in an exam for regrading after making changes to the exam), copying the homework of someone else, submitting for credit work done by someone else, stealing examinations or course materials, tampering with the grade records or with another student's work, or knowingly and intentionally assisting another student in any of the above. Students are reminded that online sources, including anonymous or unattributed ones like Wikipedia, still need to be cited like any other source; and copying from any source without attribution is considered plagiarism.

The Department of Economics will deal with these offenses harshly following [UWS14 procedures](#):

1. The penalty for misconduct in most cases will be removal from the course and a failing grade,
2. The department will inform the Dean of Students as required and additional sanctions may be applied.
3. The department will keep an internal record of misconduct incidents. This information will be made available to teaching faculty writing recommendation letters and to admission offices of the School of Business and Engineering.

If you think you see incidents of misconduct, you should tell your instructor about them, in which case they will take appropriate action and protect your identity. You can also choose to contact our department administrator, Tammy Herbst-Koel ([therbst@wisc.edu](mailto:therbst@wisc.edu)), and your identity will be kept confidential. For more information, refer to <https://www.students.wisc.edu/doso/academic-integrity/>

### **Grievance Procedure**

The Department of Economics has developed a grievance procedure through which you may register comments or complaints about a course, an instructor, or a teaching assistant. The Department continues to provide a course evaluation each semester in every class. If you wish to make anonymous complaints to an instructor or teaching assistant, the appropriate vehicle is the course evaluation. If you have a disagreement with an instructor or a teaching assistant, we strongly encourage you to try to resolve the dispute with him or her directly. The grievance procedure is designed for situations where neither of these channels is appropriate.

If you wish to file a grievance, you should go to room 7238 Social Science and request a Course Comment Sheet. When completing the comment sheet, you will need to provide a detailed statement that describes what aspects of the course you find unsatisfactory. You will need to sign the sheet and provide your student identification number, your address, and a phone where you can be reached. The Department plans to investigate comments fully and will respond in writing to complaints.

Your name, address, phone number, and student ID number will not be revealed to the instructor or teaching assistant involved and will be treated as confidential. The Department needs this information, because it may become necessary for a commenting student to have a meeting with the department chair or a nominee to gather additional information. A name and address are necessary for providing a written response.

### **Number of Credits**

This 3 CR course has two 75 min lectures per week. Students are expected to work approximately 6 hours per week outside of class to complete assignments and learn the relevant material.

### **DIVERSITY & INCLUSION**

**Institutional statement on diversity:** “Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.”  
<https://diversity.wisc.edu/>