



**Public Affairs 819: Advanced Statistical Methods for Public Policy Analysis (rev'd)**  
**Spring 2020 (3 units)**

MW 3:30PM – 4:45PM, SOCIAL SCIENCES 6203 [LECTURE]  
TH 8:50AM-9:40AM STERLING 2335 [SECTION]  
TH 9:55AM-10:45AM STERLING 2335 [SECTION]  
TH 11:00AM-11:50AM VAN VLECK B231 [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\\_s20.html](http://www.ssc.wisc.edu/~mchinn/web819_s20.html)

**INSTRUCTOR**

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**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*, 3<sup>rd</sup> edition Update. Addison-Wesley (2010) (Students may use the 1<sup>st</sup> or 2<sup>nd</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 3/23, 4/29
- 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, 3<sup>rd</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	1/22	1-3		Introduction/Review of statistics
2	1/27	4.1-4.3		Bivariate regression I
3	1/29	4.5-4.6, 5.1-5.2, 5.6		Bivariate regression II
4	2/3	4.4, 6.1-6.3		Multiple regression I; <b>PS1 due</b>
5	2/5	6.5-6.8		Multiple regression II
6	2/10	4.3, 6.4, 7.1-7.4		Tests of joint hypotheses; <b>PS2 due</b>
7	2/12	5.3		<b>In-class QUIZ</b> ; dummy variables
8	2/17	8.3		Dummy variable interactions
9	2/19	8.1-8.2; 8.4-8.5		Nonlinear relationships I
10	2/24			Nonlinear relationships II; <b>PS3 due</b>
11	2/26	11.1-11.2		Binary dependent variables I
12	3/2	11.3-11.5		Binary dependent variables II
13	3/4	6.1, 7.5, 9.2		Omitted variables & endogeneity
14	3/9	9.1-9.5		External and internal validity
15	3/11	13.1, 13.3	Krueger	Program Eval'n I: Randomized controlled tests
16	3/23	13.2		Program Eval'n II: Problems with randomized tests; <b>PS4 due</b>
16	3/25			<b>MIDTERM EXAM 1</b>
18	3/30	13.4-13.7	CK	Program Eval'n III: Differences-in-differences, natural experiments
19	4/1	10		Panel Data I
20	4/6	10		Panel Data II
21	4/8	12.1		Instrumental Variables I; <b>PS5 due</b>
22	4/13	12.2-12.6		Instrumental Variables II
23	4/15			Small group meetings for Final Exercise
24	4/20	11.2		Tobit
25	4/22			<b>GROUP PRESENTATIONS OF FINAL EXERCISE</b>
26	4/27			Review; <b>PS6 due</b>
27	4/29			<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.

## **RULES, RIGHTS & RESPONSIBILITIES**

See the Guide's to [Rules, Rights and Responsibilities](#)

## **ACADEMIC INTEGRITY**

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to [studentconduct.wiscweb.wisc.edu/academic-integrity/](http://studentconduct.wiscweb.wisc.edu/academic-integrity/).

## **ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

**McBurney Disability Resource Center syllabus statement:** "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA." <http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>

## **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/>

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