Advanced Statistical Methods for Public Policy Analysis

1. INTRODUCTION

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.

Prerequisite: A knowledge of statistics at the level of PA 818 is assumed.

2. INSTRUCTOR INFORMATION

Instructor
Prof. Menzie Chinn: MW 1:30-2:30
7418 Social Sciences Bldg., 262-7397
e-mail: mchinn@lafollette.wisc.edu

Teaching Assistant
Wilson Law: W 9-11
403 Bascom
Email: wblaw@wisc.edu

Updated information will be posted on the course website.

READINGS
The required textbook for the course is
(Students may use the 1st or 2nd edition, if they wish)

All optional readings will be available at Learn@UW.
To see what topics pop up in econometrics, see David Giles’s http://davegiles.blogspot.com/ and occasionally Econbrowser, http://www.econbrowser.com
**GRADING**

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<td>Problem Sets</td>
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<td>Quiz</td>
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<td>First Exam</td>
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<td>Group Exercise</td>
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<td>Second Exam</td>
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**PROBLEM SETS**

1) Problem sets are required.

2) Problem sets must be handed in before class on the day they are due. Late problem sets will be penalized.

3) 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.

4) STATA, a statistical software package, is available both in the computer lab and from the SCC.

**EXAMS**

There will be a quiz and two exams. These will all be closed book, closed notes. We will provide you with all formulas.

**SCHEDULE**

*Note: All reading assignments are in Stock and Watson, 3rd Ed. unless otherwise noted. Chapter in previous editions are numbered slightly differently, so use care.*

1. Wed., Jan 21  
   Introduction and Review of Statistics  
   Reading: Ch. 1-3

2. Mon., Jan 26  
   Bivariate Regression I  
   Reading: Ch. 4.1-4.3

3. Wed., Jan 28  
   Bivariate Regression II  
   Reading: Ch. 4.5-4.6; Ch. 5.1-5.2; 5.6

4. Mon., Feb. 2  
   Multiple Regression I  
   Reading: Ch. 4.4; Ch. 6.1-6.3
   **ASSIGNMENT 1 DUE**

5. Wed., Feb. 4  
   Multiple Regression II  
   Reading: Ch. 6.5-6.8
6. Mon., Feb. 9  Tests of Joint Hypotheses  
Reading:  Ch. 4.3, 6.4, 7.1-7.4  
ASSIGNMENT 2 DUE

7. Wed., Feb. 11  Dummy Variables  
Reading:  Ch. 5.3  
IN-CLASS QUIZ

8. Mon., Feb. 16  Dummy Variable Interactions  
Reading:  Ch. 8.3

Reading:  Ch. 8.1-8.2; 8.4-8.5

10. Mon., Feb. 23  Nonlinear Relationships II  
ASSIGNMENT 3 DUE


12. Mon., Mar. 2  Binary dependent variables I  
Reading:  Ch. 11.1-11.2

13. Wed., Mar. 4  Binary dependent variables II  
Reading:  Ch. 11.3-11.5

14. Mon., Mar. 9  Omitted Variables and Endogeneity  
Reading:  Ch. 6.1, 7.5, 9.2

15. Wed., Mar. 11  Internal and External Validity  
Reading:  Ch. 9.1-9.5

16. Mon., Mar. 16  Program Evaluation I: Randomized controlled experiments; Exam Review  
Reading:  Ch. 13.1; 13.3  
(optional) AP, Ch. 2.2-2.3

17. Wed., Mar. 18  FIRST EXAM: In class
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<tr>
<th>Date</th>
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<tr>
<td>18. Mon., Mar. 23</td>
<td>Program Evaluation II: Problems with Controlled Experiments</td>
<td>Reading: Ch. 13.2</td>
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<td>ASSIGNMENT 4 DUE</td>
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<td></td>
<td></td>
<td>The American Economic Review Vol. 84, No. 4 (Sep., 1994), pp. 772-793</td>
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<td>20. Mon., Apr. 6</td>
<td>Panel Data I</td>
<td>Reading: Ch. 10</td>
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<td>21. Wed., Apr. 8</td>
<td>Panel Data I</td>
<td>Reading: Ch. 10</td>
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<td>22. Mon., Apr. 13</td>
<td>Instrumental Variables I</td>
<td>Reading: Ch. 12.1</td>
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<td>ASSIGNMENT 5 DUE</td>
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<td>23. Wed., Apr. 15</td>
<td>Instrumental Variables II</td>
<td>Reading: Ch. 12.2-12.6</td>
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<td>24. Mon., Apr. 20</td>
<td>Small Groups Meeting for Final Exercise</td>
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<td>25. Wed., Apr. 22</td>
<td>Tobit</td>
<td>Reading: Ch. 11.2</td>
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<td>26. Mon., Apr. 27</td>
<td>Logit and the Odds Ratio</td>
<td>Reading: Ch 8.1, 11.3</td>
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<td>27. Wed., Apr. 29</td>
<td>Group Discussion of Final Exercise</td>
<td>FINAL EXERCISE DUE</td>
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<td>28. Mon., May 4</td>
<td>Exam Review</td>
<td>ASSIGNMENT 6 DUE</td>
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<td>29. Wed., May 6</td>
<td>SECOND EXAM: In class</td>
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