Dr. Barbara Morgan  
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Office hours: W 1:30-3:30 Greenhouse Annex or by appointment  

Course Description  
This course is designed to expand the quantitative skills of students in several dimensions. New techniques will be explored, and old ones reinforced with further application. Topics covered will include simple and multiple regression models, different functional forms, the use of dummy, interactive, quadratic and lagged terms in regression analysis, simple time series models, instrumental variables estimation, models for panel data, and limited dependent variable models. The emphasis will be on the practical application of these models, rather than with formal proofs. We use a comprehensive text that emphasizes public policy issues; in addition, a key component of the course is the critical analysis of selected empirical articles in a range of policy areas. Understanding will be reinforced by hands-on exercises using statistical software (STATA). Each student will also research and formally present an empirical paper in any policy area of interest. The overall goal is that you become adept at selecting the appropriate econometric model for addressing a specific policy question, at recognizing the limitations of each model, and at critically evaluating conference papers and policy reports that use econometric techniques. Prerequisites are the sequence 195.605 and 195.606, or any comparable sequence, or permission of the instructor.  

Texts:  
For students who want more help with STATA, I recommend the following on reserve at IPS: Hamilton, Lawrence C. *Statistics with STATA* (Brooks/Cole).  
Handouts and assignments will be made available on Blackboard. Required supplementary readings are on electronic reserve through the Milton S. Eisenhower library.  

Evaluation:  
There will be 4 homeworks, a paper and presentation, and a final exam. You will also be expected to complete the required reading prior to class and be prepared to discuss the selected articles in some depth.  
Homeworks 20%  
Paper/presentation 35%  
Class participation 20%  
Final Exam 25%
Computer Homeworks:
Use STATA to complete the following (with due dates):
1. Examine the link between substance abuse and infant health (February 18)
2. Evaluate the importance of education in determining wage outcomes (March 4)
3. Examine litigation outcomes using a probit model (April 1)
4. Estimate a fixed effects model to explain the variation in state crime rates (April 22)

Paper:
You must complete a short paper on a topic of your choice. The paper should be approximately 8-10 pages in length and should demonstrate that you understand and can apply econometric techniques to an issue of public policy. Read Wooldridge Ch. 19 Carrying Out an Empirical Project for excellent advice on how to proceed with this type of project. Several potential topics are also listed there. A schedule of assignment dates follows.

Paper Proposal – March 18. A one-page abstract briefly outlining the question you are asking, and the types of model and data you will be using. Provide at least three related references you have consulted.

Progress Report – April 6. Submit a table of descriptive statistics for the data you are using and a one-page description of the empirical model to be used. Describe what type of estimation you will do, what variables will be included and any possible problems or shortcomings of your approach. You will have some class time to present your proposal and receive feedback.

Paper Presentation – April 27, May 4. You will have an opportunity to present your paper to the class. The following issues should be addressed in that presentation:
   ♦ What question is being addressed in my paper? Why is it important? What is the context?
   ♦ What does my data look like? Are there any problems with it? (Please present a handout/overhead of descriptive statistics and discuss).
   ♦ What kind of model is being used? Briefly describe it, and mention any shortcomings.
   ♦ What does the empirical analysis show? (Please present a handout/overhead of results and discuss).
   ♦ Conclusion. What does this research contribute? What are the policy implications? Indicate any areas for further research.

The use of overheads, Powerpoint or similar technical aids are optional. However, aim to make your presentation as professional as possible.

Final Paper – May 6. The final paper should have a clear writing style, correct spelling, grammar and punctuation, be well-organized and include references. You should explain the question asked, put it into context, describe the data you are using, specify the model used, interpret the results and draw conclusions. Late papers, or papers that are longer than 10 pages (double-spaced) excluding tables, will be penalized.
Quantitative Approaches to Public Policy
Johns Hopkins University Spring 2010
Course Outline and Reading List

Date:

2/2  Review of Simple Regression  
Reading:  Wooldridge Ch.1, 2

2/9  Multiple Regression  
Reading:  Wooldridge Ch.3
Hellerstein, Judith K. 1998. “Public Funds, Private Funds and Medical Innovation,” 

2/16  Multiple Regression – Further Issues  
Reading:  Wooldridge Ch.4, 6

2/23  Dummy Variables  
Reading:  Wooldridge Ch.7

3/2  Specification Issues  
Reading:  Wooldridge Ch.8, 9

3/9  Limited Dependent Variable Models  
Reading:  Wooldridge Ch.7, 17 (parts)


3/30  Simple Time Series Models  
Reading:  Wooldridge Ch.10

4/6  Papers – Progress Reports

4/13  Using Panel Data  
Reading:  Wooldridge Ch.13, 14

4/20  Instrumental Variables Estimation  
Reading:  Wooldridge Ch.15

4/27, 5/4  Presentation of Papers

5/6  Final Paper Due Friday 6 May  
Final Exam Take Home TBA