

**COURSE SYLLABUS**  
**API-202B/C/D**  
**Empirical Methods II**  
**Spring 2005**

| <i>Section</i> | <i>Professor</i> |      | <i>Teaching Fellow</i> | <i>Faculty Assistant</i> |       |
|----------------|------------------|------|------------------------|--------------------------|-------|
| B              | Susan Dynarski   | L231 | Naomi Calvo            | JD LaRock                | T402A |
| C              | Dan Levy         | L115 | Fan Zhang              | Maryjane Rose            | L207  |
| D              | Alberto Abadie   | R316 | Andrew Clark-West      | Barbara Slater           | L345  |

Class Time: Tu., Th. 10:10-11:30

Review Sessions: Thu., 4:10-5:30 L140  
Fri., 10:10-11:30 Starr

**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 and program evaluation for analyzing data in the social sciences. 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 API-201 is assumed.

**TEXTBOOK**

Stock, J. and Watson, M., *Introduction to Econometrics*, Addison-Wesley (2003).

**GRADING**

|                 |     |
|-----------------|-----|
| Problem Sets    | 15% |
| Quiz            | 5%  |
| Midterm Exam:   | 25% |
| Final exercise: | 15% |
| Final Exam:     | 40% |

## **EXAMS**

There will be a quiz, a midterm and a final. These will be closed book and closed notes. We will provide you with relevant formulas.

## **PROBLEM SETS & FINAL EXERCISE**

- 1) Problem sets must be handed in before class on the day they are due. Late problem sets will be penalized.
- 2) You may work on the problem sets in groups of two or three. Answers must be written up individually, in your own words. Put the names of your study group member(s) on your problem set.
- 3) Stata, a statistical software package, is available both in the computer lab and from the CMO.

## SCHEDULE

*All reading assignments are in Stock and Watson.*

|                         |                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------|
| <b>Thurs., Feb. 3</b>   | <u>Introduction and Review of Statistics</u><br>Reading: Ch. 1-3                            |
| <b>Tues., Feb. 8</b>    | <u>Bivariate Regression I</u><br>Reading: Ch. 4.1-4.2                                       |
| <b>Thurs., Feb. 10</b>  | <u>Bivariate Regression II</u><br>Reading: Ch. 4.4-4.6, 4.8-4.10<br><b>ASSIGNMENT 1 DUE</b> |
| <b>Tues., Feb. 15</b>   | <u>Multiple Regression I</u><br>Reading: Ch. 5.1-5.3                                        |
| <b>Thurs., Feb. 17</b>  | <u>Multiple Regression II</u><br>Reading: Ch. 5.5-5.6, 5.10<br><b>IN-CLASS QUIZ</b>         |
| <b>Thurs., Feb. 22</b>  | <u>Dummy Variables</u><br>Reading: Ch. 4.7, 5.11-5.13                                       |
| <b>Tues., Feb. 24</b>   | <u>Tests of Joint Hypotheses</u><br>Reading: Ch. 5.7, 5.11-5.13<br><b>ASSIGNMENT 2 DUE</b>  |
| <b>Tues., March 1</b>   | <u>Dummy Variable Interactions</u><br>Reading: Ch. 6.1-6.2                                  |
| <b>Thurs., March 3</b>  | <u>Functional Form I</u><br>Reading: Ch. 6.3-6.5, 8<br><b>ASSIGNMENT 3 DUE</b>              |
| <b>Tues., March 8</b>   | <u>Functional Form II</u><br>Reading: Ch. 6.3-6.5, 8                                        |
| <b>Thurs., March 10</b> | <u>Midterm Review</u><br><b>ASSIGNMENT 4 DUE</b>                                            |
| <b>Tues., March 15</b>  | <b>MIDTERM EXAM</b>                                                                         |
| <b>Thurs., March 17</b> | <u>Binary dependent variables I</u><br>Reading: Ch. 9.1-9.5                                 |
| <b>Tues., March 22</b>  | <u>Binary dependent variables II</u><br>Reading: Ch. 9.1-9.5                                |

|                                            |                                                                                                                         |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Thurs., Mar. 24</b>                     | <u>Program Evaluation I: Randomized controlled experiments</u><br>Reading: Ch. 7 & 11.1-11.4<br><b>ASSIGNMENT 5 DUE</b> |
| <b>Tues., March 29<br/>Tues., March 31</b> | <b>SPRING BREAK</b>                                                                                                     |
| <b>Tues., April 5</b>                      | <u>Program Evaluation II: Problems with Controlled Experiments</u><br>Reading: Ch. 7 & 11.1-11.4                        |
| <b>Thurs., April 7</b>                     | <u>Program Evaluation III: Natural Experiments / Panel Data</u><br>Reading: Ch. 11.5-11.8<br><b>ASSIGNMENT 6 DUE</b>    |
| <b>Tues., April 12</b>                     | <u>Instrumental Variables I</u><br>Reading: Ch. 10                                                                      |
| <b>Thurs., April 14</b>                    | <u>Instrumental Variables II</u><br>Reading: Ch. 10<br><b>ASSIGNMENT 7 DUE</b>                                          |
| <b>Tues., April 19</b>                     | <u>No Class: Group Meetings for Projects</u>                                                                            |
| <b>Thurs., April 21</b>                    | <u>Discussion of Final Exercise</u><br><b>FINAL EXERCISE DUE</b>                                                        |
| <b>Monday Apr. 26<br/>- Friday May 7</b>   | <b>SPRING EXERCISE</b>                                                                                                  |
| <b>May 20</b>                              | <b>FINAL EXAM</b><br>Exam date and time are subject to change by the registrar.                                         |