Course Syllabus
ECON 7811/8811: Econometrics II
Spring Semester, 2023
3.0 Credit Hours

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Office: FAB 423

Class meeting time: Th 5:30 – 8:30 p.m.

Course Overview:

This is an empirical class with concentration in applied microeconometrics. (We will not cover any Time Series topics, which are reserved for ECON 8812.) Its goal is to give you knowledge (in various econometrics methods and theory) and the tools (in particular, Stata) to solve real-life problems. Focus will be on techniques used within the economics discipline, but these approaches will also apply to other social sciences and business fields. Topics will include: panel data; instrumental variables and simultaneous equations models; estimation of treatment effects; binomial and multinomial choice models; censored data and sample selectivity; regression discontinuity design; quantile regression.

Pre-Requisites/Co-Requisites: ECON 7810/8810 or similar background with permission of instructor.

Recommended Text: Besides the class notes (posted online), the recommended textbooks are Mostly Harmless Econometrics by Angrist and Pischke, and Microeconometrics Using Stata, by Cameron & Trivedi (applied micro problems solved in Stata step-by-step with detailed explanations). In addition, I find the following textbooks very useful for anyone doing empirical econometrics: Stock and Watson, Introduction to Econometrics (simple explanations, advanced undergraduate level); Berndt, The Practice of Econometrics: Classic and Contemporary (many real-life case studies); Wooldridge, Econometric Analysis of Cross Section and Panel Data (the best book on panel data analysis); Long and Freese, Regression Models for Categorical Dependent Variables Using Stata (very thorough and approachable for the topics described by the title).

Location of Course Materials:
All homework assignments (and other course documents) will be found on the course website once they are assigned.

**Course Objectives:**

By successfully completing this course, students will be able to:

1. Understand the theoretical underpinnings of several empirical microeconomic techniques
2. Distinguish between alternative techniques in terms of their pros and cons and appropriateness of use.
3. Critically read peer reviewed articles that employ a variety of econometric approaches.
4. Proficiently use Stata for data manipulation and analysis.

**Fogelman College: Learning Outcomes for Your Degree**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Link</th>
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<tbody>
<tr>
<td>Ph.D.</td>
<td><a href="https://www.memphis.edu/fcbeassessment/phd-degree/phd-learning-outcomes.php">https://www.memphis.edu/fcbeassessment/phd-degree/phd-learning-outcomes.php</a></td>
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**Grading and Evaluation Criteria**

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

**Summary of Graded Activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage of grade</th>
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<tbody>
<tr>
<td>Midterm Exam 1</td>
<td>28</td>
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<tr>
<td>Midterm Exam 2</td>
<td>28</td>
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<tr>
<td>Short Paper</td>
<td>12</td>
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<tr>
<td>Homework Assignments</td>
<td>28</td>
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<tr>
<td>Participation</td>
<td>4</td>
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Homework Assignments

There will be several (9 or 10) homework assignments, usually due weekly, which make up 28% of your grade. They will consist of several parts. Often, you will have to carefully read an assigned paper and then replicate its results in Stata. The homeworks will be graded on the “check/-check/check+” basis, which roughly correspond to 60/80/100 points. It’s difficult to complete a homework assignment in one day, so I strongly recommend starting early. You may (and are encouraged to) work on these assignments in groups, but each student must write and turn in their own assignments.

Class Participation

As this is an advanced graduate class, its format would be the “professor/students conversation” rather than “lectures,” which are more common in undergraduate studies. While formal attendance will not be taken, I expect all students to take active part in the in-class discussion. To further encourage student’s participation, students will be assigned to give brief presentations of journal articles in order to initiate classroom discussion (4% of grade). Article assignments will be made in part based on student preferences and academic discipline.

Final Course Grade:

Final course grades are earned according to the following table. I reserve the right to lower, but not raise, these cutoffs).

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<thead>
<tr>
<th>Range</th>
<th>Assigned Grade</th>
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<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>87-90</td>
<td>A-</td>
</tr>
<tr>
<td>85-87</td>
<td>B+</td>
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<tr>
<td>77-85</td>
<td>B</td>
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<tr>
<td>75-77</td>
<td>B-</td>
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<tr>
<td>60-62</td>
<td>C-</td>
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<tr>
<td>55-60</td>
<td>D</td>
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<td>&lt;55</td>
<td>F</td>
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Course Policies:

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a “full mailbox” condition, etc.) is the student’s responsibility.
Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar’s website (opens in new window).

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook in the section on Code of Student Rights & Responsibilities for information. If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College’s Website on Academic Integrity (opens in new window).

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College’s Netiquette website (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services:

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Topics and Tentative Schedule:

1. Introduction; OLS review: The OLS estimator; Violations of the OLS assumptions; Testing single and multiple restrictions, etc. (1/23 – 1/30)

   HW#1: Getting started with Stata: simple OLS regressions. (Due 2/6)
   HW#2: Handling data in Stata, use of codebooks. (Due 2/6)
2. Panel Estimation: Fixed effects: demeaning, fixed effects dummies, first differencing; The between estimator; The pooled estimator; The random effects estimator; If time, introduction to systems of equations (1/30 – 2/6)

   HW#3: Estimating panel regressions in Stata: The Effect of Beer Tax on the Traffic Fatality Rate. (Due 2/13)

3. Qualitative and Limited dependent variables: MLE; LPM, Logit, Probit, Tobit, etc. (2/6 – 2/13)


4. The evaluation problem:
   a. Randomized experiments (2/20)


   b. Controlling for confounding variables: Regression approach, Matching pairs, Propensity score, synthetic control (2/27)


   Midterm I: (3/5)

   c. Difference-in-Differences (DID) (3/19)


   d. Instrumental Variables (IV) and Systems of Equations (3/26)


   e. Regression-discontinuity design (RDD) (4/2)

   f. Introduction to machine learning techniques (4/9)
HW#10: To Be Determined (Due 4/16)

Midterm II: (4/23)

Short Paper (Due 5/6)