Course Syllabus
ECON 7811/8811: Microeconometrics
Fall 2020
3.0 Credit Hours

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SkypeID: ajhussey
Zoom meeting link: https://us02web.zoom.us/j/4925339057?pwd=UDl3V2hqUjdBMjAxVllDMjAxVllDMjAx

Office Hours: As this course has become and will remain a fully online class, the standard means for communicating with the instructor is via email throughout the term. I will be available by Zoom twice per week: 1:00-2:25 p.m., Tuesday and Thursday. Alternative times for video/phone may also be set up via email.

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:
The primary source of written material for the course will be detailed notes provided to you. Besides these, 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). If you go through the notes in detail and also read the relevant sections in these textbooks, you should walk away from this course with some very valuable and practical knowledge and skills. (This is, after all, the most important thing you should be thinking about as a graduate student – far more than course grades.)

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>Program</th>
<th>Learning Outcomes URL</th>
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<tbody>
<tr>
<td>MSBA</td>
<td><a href="https://www.memphis.edu/fcbeassessment/msba-degree/msba-learning-outcomes.php">https://www.memphis.edu/fcbeassessment/msba-degree/msba-learning-outcomes.php</a></td>
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<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>20</td>
</tr>
<tr>
<td>Midterm Exam 2</td>
<td>20</td>
</tr>
<tr>
<td>Short Paper</td>
<td>20</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>40</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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#### Homework Assignments:

There will be several homework assignments, due weekly, which make up 20% 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.

#### Exams:

There will be two exams in the course. The second exam will only cover material from the second part of the course. As this course is online, the exams will be take-home. You will be allowed to use any course materials for the exams, but no communication with any other people (inside or outside the class) is allowed. There will be no “final” exam.

#### Short Paper:

The final assignment is to write a short empirical paper. Your analysis for the paper should utilize one of the techniques addressed in the class (something beyond OLS). The paper must be very concise; following the guidelines for articles submitted to the journal, Economics Letters, you should aim for no more than 2,000 words. While your paper should draw on some existing literature, there will be no room for a detailed literature review. Similarly, space constraints are likely to limit you to only 1 or 2 tables of results. If you have existing or ongoing research, this paper should not be identical to that other work. However, this is a good opportunity to explore a closely related research question that may further your broader area of research. Of course, the paper topic may otherwise be completely unrelated to any of your existing research areas or interests, even in another discipline. This paper is due the day of our scheduled (non-existent) final exam, November 19.

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

<table>
<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>73-75</td>
<td>C+</td>
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<tr>
<td>62-73</td>
<td>C</td>
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<tr>
<td>60-62</td>
<td>C-</td>
</tr>
<tr>
<td>55-60</td>
<td>D</td>
</tr>
<tr>
<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.

Attendance:

Since this is an online class taught asynchronously, there are no scheduled meeting times. Thus, formal attendance will not be taken. However, you are expected to stay active and engaged throughout the academic term and keep up with the schedule of activities. Your full engagement in the class begins on the first day of the semester and should be maintained until the last assignment is submitted. For students receiving federal student loans, any lack of engagement in the course may be treated as non-attendance and potentially impact access to student loans in the future.

Student Accommodations:

Students with accessibility issues or learning accommodation issues due to a disability should contact Disability Resources for Students (DRS) to submit an official request for course accommodations. Contact DRS at 901.678.2880 or at drs@memphis.edu (https://www.memphis.edu/drs/index.php)
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:

Plagiarism, cheating and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly, through participation or assistance, are immediately responsible to the instructor of the class in addition to other possible disciplinary sanctions which may be imposed through the regular institutional disciplinary procedures (https://www.memphis.edu/osa/students/academic-misconduct.php). You are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Student Health:

Students who have a positive COVID-19 test should contact the Dean of Students at deanofstudents@memphis.edu.

Student Resources:

Students who need additional resources can visit the Dean of Students Office website at https://www.memphis.edu/deanofstudents/crisis/index.php.

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).

Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. Please do not wait until the last day to submit assignments or to take quizzes and exams. If an emergency should arise, it is the student’s responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if both of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.
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. (week of 8/17)
   
   **HW#1:** Getting started with Stata: simple OLS regressions. (Due 8/30)
   
   **HW#2:** Handling data in Stata, use of codebooks. ( Due 8/30)

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 (weeks of 8/23 and 8/30)
   
   **HW#3:** Estimating panel regressions in Stata: The Effect of Beer Tax on the Traffic Fatality Rate. (Due 9/6)

3. Qualitative and Limited dependent variables: MLE; LPM, Logit, Probit, Tobit, etc. (weeks of 8/30 – 9/6)


4. The evaluation problem:
   a. Randomized experiments (week of 9/6)


   b. Controlling for confounding variables: Regression approach, Matching pairs, Propensity score (week of 9/13)

Exam I: (Available 9/20, Due 9/27)

c. Difference-in-Differences (DID) (week of 9/27)


d. Synthetic Control (week of 10/4)

HW#9: To be announced (Due 10/18)

e. Instrumental Variables (IV) and Systems of Equations (weeks of 10/11 and 10/18)


f. Regression-discontinuity design (RDD) (week of 10/25)

HW#11: To be announced (Due 11/1)

g. Introduction to machine learning techniques (week of 11/1)

HW#12: To Be Determined (Due 11/8)

Exam 2: (Available 11/1, Due 11/15)

Short Paper (Due 11/19)