Econ 481-3
Topics in Econometrics
Spring 2022

Lecture: TTh 1:30-3:20, in Person!! Yay!!!!! 😊

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Web Page: http://sites.northwestern.edu/iac879
Office Hours: by appointment

Course Description: This course is the third quarter in the graduate econometrics sequence. It is divided in three parts. Part I presents a comprehensive discussion of the most popular instrumental variables approaches for causal inference currently used in applied work. Part II presents what I consider to be the fundamental notions behind asymptotic approximations, with a discussion of uniform inference. Part III covers recent developments in the literature of Differences in Differences.

Grading: Grading will consist on weekly reports (submitted via Canvas), two problem sets due on May 3rd and May 19th, and an in-class presentation on one of the topics of Part III. The problem sets will be available a week and a half before the due date and will consist of theoretical questions and empirical/methodological questions. Weekly reports should avoid displays and formulas and be limited to a maximum of two pages. Finally, for the in-class presentation the students must prepare a slide presentation and write a 8-10 pages long set of lecture notes as described below. The weighting scheme for the final grade will be:

- Weekly Reports: 20%
- Problem sets: 50%
- in-Class presentation: 30%

Lecture Notes: I will provide lecture notes or slides every week with related references you are supposed to read. The readings listed below include most of the articles we will discuss in class.

in-class Presentation: Students should split into 4 groups and choose one of the topics of Part III by April 26th. The following is expected:

- Day of presentation: A slide presentation available to students the morning before class.
• **Day of presentation:** A set of lecture notes that is about 8-10 pages long in a similar format than the one used for the class lecture notes. I expect minimal copy-pasting from the original sources.

• **Grading the day after:** Grading will evaluate the clarity of the slides, the clarity of the lecture note, and the quality of the exposition during the presentation. This part of the course will involve anonymous peer grading, so each student will have to fill out the grading form after each presentation and send it to the instructor.

AccessibleNU: Any student requesting accommodations related to a disability or other condition is required to register with AccessibleNU (847-467-5530) and provide professors with an accommodation notification from AccessibleNU, preferably within the first two weeks of class. All information will remain confidential.

**Lecture Recordings:** Unauthorized student recording of classroom or other academic activities (including advising sessions or office hours) is prohibited. Unauthorized recording is unethical and may also be a violation of University policy and state law. Students requesting the use of assistive technology as an accommodation should contact AccessibleNU. Unauthorized use of classroom recordings — including distributing or posting them — is also prohibited. Under the University’s Copyright Policy, faculty own the copyright to instructional materials — including those resources created specifically for the purposes of instruction, such as syllabi, lectures and lecture notes, and presentations. Students cannot copy, reproduce, display or distribute these materials. Students who engage in unauthorized recording, unauthorized use of a recording or unauthorized distribution of instructional materials will be referred to the appropriate University office for follow-up.
Tentative Course Schedule: Econ 481-3 Spring 2022

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<thead>
<tr>
<th>Lecture</th>
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<th>Topics</th>
<th>Evaluation</th>
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<tr>
<td></td>
<td></td>
<td><strong>Part I:</strong> A Primer on Causal Inference with IVs</td>
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<tr>
<td>1</td>
<td>Th, March 31</td>
<td>Selection on Observables</td>
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<td>2</td>
<td>Tu, April 5</td>
<td>Roy Models and LATE</td>
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<td>3</td>
<td>Th, April 7</td>
<td>Marginal Treatment Effects (MTEs)</td>
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<td>4</td>
<td>Tu, April 12</td>
<td>Extrapolation and Some Extensions</td>
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<td>5</td>
<td>Th, April 14</td>
<td>Surrogates I PS1 out</td>
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<td>6</td>
<td>Tu, April 19</td>
<td>Surrogates II</td>
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<td>7</td>
<td>Th, April 21</td>
<td>Augmented IPW</td>
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<td>8</td>
<td>Tu, April 26</td>
<td>Double Robustness Pick Topic</td>
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<td><strong>Part II:</strong> Understanding Asymptotic Approximations</td>
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<td>Th, April 28</td>
<td>Local Asymptotics (b)</td>
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<td>10</td>
<td>Tu, May 3</td>
<td>Contiguity (b) PS1 due</td>
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<td>11</td>
<td>Th, May 5</td>
<td>Local Asymptotic Normality (b) PS2 out</td>
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<td>12</td>
<td>Tu, May 10</td>
<td>Convolution Theorems (b)</td>
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<td>13</td>
<td>Th, May 12</td>
<td>The Bahadur-Savage Problem (b)</td>
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<td>Tu, May 17</td>
<td>Uniformity of the t-test (b)</td>
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<td>Th, May 19</td>
<td>Uniformity of Subsampling (b) PS2 due</td>
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<td><strong>Part III</strong>: Differences in Differences</td>
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<td>Tu, May 24</td>
<td>Intro to DiD [29] [12] and [11] [32] Presentation</td>
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<td>17</td>
<td>Th, May 26</td>
<td>Parallel Trends [28] [25] [19] Presentation</td>
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<td>18</td>
<td>Tu, May 31</td>
<td>Staggered Adoption and TWFEs [7] [11] Presentation</td>
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Readings


