PPHA 58002  
Data Analytics II: Introduction to Program Evaluation  
Dr. Christopher Clapp  
Syllabus, Fall 2020

Class  
Meetings: W 6:00-8:50pm  
Location: Zoom

Professor: Chris Clapp  
Email: cclapp@uchicago.edu  
Office Hours: TBD (W 5:00-6:00pm?)  
or by appointment  
Location: Zoom

TA: Joseph Nardi  
Email: nardij@uchicago.edu  
Office Hours: TBD  
Location: Zoom

Course Description

How do we know whether a policy or program delivers its promised results or falls short? If it delivers, how do we know whether it was by chance or whether it would produce the same outcome in a similar setting? This class will teach you the tools that economists and other social scientists use to determine the causal effects of different actions and make more informed decisions.

Learning Objectives: What’s My Incentive for Taking This Course?

Specifically, the purpose of the course is to introduce students to program evaluation techniques and provide an overview of current issues and methods. The course is designed to make you good consumers of these techniques. This will allow you to use the results from program evaluations, select contractors to carry them out, and/or supervise the work of others. It might even be a springboard on your way to being a producer of clever evaluations that inform better policy and make the world a better place.

You’ll also benefit from an increased understanding of how we use data and statistics to understand what’s going on around us. Why does this matter? As journalist Clive Thompson stated, “We live in a world where the thorniest policy issues increasingly boil down to arguments over what the data mean. If you don’t understand statistics, you don’t know what’s going on - and you can’t tell when you’re being lied to.”

Along the way you can expect to:

• Use the economic triple-threat (intuition/pictures/math) to learn program evaluation techniques.
• (Re)Learn statistical concepts and develop a deeper understanding of statistics.
• Gain an appreciation of the difference between correlation and causation.
• Understand why it is often hard to make that distinction based on available data.
• Recognize the limits of the tools covered (and be hungry to learn more???)

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Overall Approach

The world is (extra) crazy right now because of the global pandemic, racial injustice, and the associated civil unrest. We’re all dealing with a lot of new issues, disruptions, and stress. So, as a guiding principle, I’m going to be (extra) nice to you! The class is designed to be as flexible and accommodating as possible while still maintaining academic standards. Please feel free to give me feedback on what’s working well and what is not. We will adjust the class further as needed.

If you get sick, are caring for a sick relative, have a tough situation at home, or anything else that becomes an obstacle to your coursework, please inform me and Krisinda as soon as you are able. We will all work together to develop appropriate accommodations.

Finally, please be nice to each other, your TA, and me. This is semester is going to be challenging, but we’re all in this together!

Evaluation

First, let me provide a quick overview of the structure of the class. Think of each class as being divided into two parts: theory and practice. For the theory component, I will post asynchronous lectures that introduce and explain different program evaluation techniques. For the practice component, students will read papers that use the given technique, answer and submit questions about the readings, and participate in a class discussion of the readings.

Your final grade in this course will be related to performance in several areas. The weight placed on each component will be as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>15%</td>
</tr>
<tr>
<td>Reading Questions</td>
<td>60%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

Class participation grades will be based on your level of active, attentive, inquisitive participation in class discussions. Note that regular class attendance is a necessary (but not sufficient) component of earning a good class participation grade.

The structure of the class requires that everyone participates in class discussions. As such, you are expected to have read and thought about the assigned paper(s) in advance of class. To help you with this, I will post a list of questions that you should answer after you read each paper. You should be prepared to share the answers to all of these questions with the class, not just the ones you feel sure about. In addition, you should upload your answers to these questions to the Gradescope application on Canvas by 5:00pm on the day of our class meetings. These responses will be graded, and the lowest grade will be dropped.¹ You are welcome (and encouraged) to form study groups (of no more than 3 students) and discuss the readings and questions with each other. To ease TA grading responsibilities, you may submit one PDF of reading question answers for your group.²

¹You should create a PDF of your review question answers for submission. When you submit the assignment on Gradescope you will prompted to indicate on which page your answer to each of the reading questions can be found. You must do this! If you don’t, Gradescope will show your answer as “missing” and you should assume you will get zero points for the question. Gradescope will not “force-submit” an assignment at deadline. If you do not submit the assignment, assume that it will show up as “not submitted” and you will get zero points. Submissions are graded per question with student’s answers randomized and identities hidden (everyone’s “1”, then “2”, etc.). Because of this is it impossible to “refer to answer for the preceding question” or “see graph for previous question.” If you find yourself referring to your answer for a prior question, include the graph/picture/etc. again.

²Please write the names of all students in your group on your problem set.
A take-home final exam will be handed out after the last class. It will be due at **11:45pm on Sunday, December 6th**. You must work independently on the final exam. You are not permitted to discuss the exam or exam related material with anyone else (in or out of the class).

**Grades**

I do not have hard and fast ranges for letter grades. Instead, cut-offs are set by examining the distribution of grades and determining significant differences in performance. The letter grade ranges will be no less beneficial to students than the standard ranges (listed in the table that follows).³

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A+</td>
<td>≥ 100.0</td>
</tr>
<tr>
<td>A</td>
<td>93.0 - 99.9</td>
</tr>
<tr>
<td>A-</td>
<td>90.0 - 92.9</td>
</tr>
<tr>
<td>B+</td>
<td>87.0 - 89.9</td>
</tr>
<tr>
<td>B</td>
<td>83.0 - 86.9</td>
</tr>
<tr>
<td>B-</td>
<td>80.0 - 82.9</td>
</tr>
<tr>
<td>C+</td>
<td>77.0 - 79.9</td>
</tr>
<tr>
<td>C</td>
<td>73.0 - 76.9</td>
</tr>
<tr>
<td>C-</td>
<td>70.0 - 72.9</td>
</tr>
<tr>
<td>D+</td>
<td>67.0 - 69.9</td>
</tr>
<tr>
<td>D</td>
<td>63.0 - 66.9</td>
</tr>
<tr>
<td>D-</td>
<td>60.0 - 62.9</td>
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<tr>
<td>F</td>
<td>&lt; 60.0</td>
</tr>
</tbody>
</table>

Pass/Fail (P/F), Withdrawal, and Incomplete grade requests will be handled in accordance with University and Harris policy. Requests must be submitted to me via email and before the appropriate deadlines.

**Materials**

**Textbooks**

  - This book covers program evaluation topics in a very accessible way.
  - *Mostly Harmless Econometrics* is a more advanced text by the same authors.

  - This textbook is a great reference for regression analysis topics.
  - Previous editions are also available (and they are usually cheaper). They are close substitutes for the current edition.

  - Another reference for regression analysis topics.

In addition, we will read academic articles that will be posted on Canvas as the course progresses.

³Please note that the University does not allow me to enter a grade of “A+” when submitting final grades, so this designation is important only for your internal satisfaction and letters of recommendation.
Office Hours

My office hours for this class are listed on the first page of the syllabus. Those hours are for you, so please make use of them (be it with questions about course material, to discuss ideas, or just to chat). You do not need to make an appointment to see me during my office hours; just drop by. I will be on Zoom during those times. If a sufficient number of students attend at the same time and office hours become too crowded to be effective, we will make alternative arrangements.

Please make your best effort to attend during the posted times, but if you have a conflict or want to talk with me one-on-one, you are welcome to make an appointment for another time. I am happy to meet with students outside of office hours. I only ask that you do your absolute best to attend the regularly scheduled office hours since I have many students and there are economies of scale in the production of knowledge. Also, if you know in advance that you cannot make a scheduled appointment, please email me to let me know.

Course Policies

- **Recording**
  - The course will be taught synchronously and asynchronously via Zoom. I will record lectures and post them only to Canvas in accordance with University and Family Educational Rights and Privacy Act (FERPA) guidelines. Office hours will not be recorded.
  - FERPA is a federal statute that, broadly speaking, guarantees privacy over certain aspects of your educational records. You can view the details of the policy on the registrar’s website (https://registrar.uchicago.edu/records/ferpa/).
  - If you record a class, discussion section, office hours, or meeting without permission, or if you share any of the recorded videos without permission, you may be violating eavesdropping laws, copyright laws, or the FERPA statute. So do not post or share any such videos outside of Canvas. This also applies to any manipulated video.

- **General**
  - There is no attendance requirement (beyond the first day), but regular attendance is necessary (but not sufficient) to do well in the class.
  - The class webpage is available through the Canvas portal. I will use it to post announcements, assignments, and grades. Please check it regularly.
  - Email is the official means of communication for out-of-class communication. In other words, you are expected to check your UChicago email account regularly.
  - I will respond to email within 2 business days (Monday-Friday, 9:00am-5:00pm). Please include “Data Analytics II:” as a prefix to your subject.
  - Any and all results of in-class and out-of-class assignments and examinations are data sources for research and may be used in published research. All such use will always be anonymous.

- **Assignments**
  - We discuss the reading questions in class, so no late assignments will be accepted for any reason, valid or otherwise.\(^4\) Not turning in an assignment, handing it in late, or failing to take an online assessment before the link expires will result in a grade of zero. I understand that students

\(^4\)Reasons include, but are not limited to: illnesses, athletic competitions, work trips, job fairs, job interviews, travel reservations, relative illnesses, relative funerals, out-of-town weddings, car accidents, car trouble, scooter trouble, tickets to see Billy Joel in concert, and emergency visits to the veterinarian with your dog.
sometimes have legitimate reasons for being unable to complete problem sets on time or give their full effort (and that is especially true this quarter), so your lowest assignment grade will be dropped.

– No make-up exams will be given, except in rare cases of serious health problems, family emergency, or other extenuating circumstances in accordance with University policy. Doing so would create concerns about uneven treatment, and I can’t be sure that classmates won’t share information about what was on the exam. In such a case, notification and/or documentation is required in a timely manner. Whenever possible, you should contact me before the exam regarding your absence.

Academic Integrity

As a member of the Student Government Judicial Branch as an undergraduate and a graduate student at a university where any non-trivial act of lying, cheating or stealing results in expulsion, I take UChicago’s Academic Integrity and Student Conduct Policy very seriously. All alleged honor violations brought to my attention will be referred to the disciplinary committee. If, in my judgment, the preponderance of the evidence indicates that a student has committed an honor violation on an assignment, that student will receive an immediate grade of zero for that assignment, regardless of the outcome of the disciplinary committee hearing. I trust every student in this course to fully comply with all of the provisions of the Academic Integrity and Student Conduct Policy. Here are specific expectations:

• On exams, it is expected that you will neither receive nor give aid, nor access any material other than items explicitly outlined in the exam instructions.

• For other assignments, you may (and should!) work with other students, but it is expected that you will collaborate on every question (as opposed to the “divide and conquer” method).

• During the entire semester, it is expected that you will not access old problem sets, exams, or answer keys at any time. This includes websites that post solutions under the guise of tutoring. (These sites both facilitate cheating and steal the intellectual property of the author.)

• During the entire semester and thereafter, it is expected that you will neither post any class material on the internet nor share any class materials with other students through any other means. Furthermore, if you become aware that this has occurred, you are obligated to let me know immediately.

Americans With Disabilities Act

Students with disabilities needing an academic accommodation should contact UChicago’s Student Disability Services (SDS). Please see their webpage for contact information (https://disabilities.uchicago.edu). Additionally, please feel free to come talk to me if I can be of help. Requests for accommodations should be made via SDS and a reasonable amount of time in advance of any exams or assignments.

Mental Health Services

Students differ in how much they know about mental health services. Your use of UChicago’s Student Health and Counseling Services (SHCS) is confidential and not linked to your academic file. There are no gains from

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5I apologize for the heavy handed tone of this section. It is intended to protect the many honest students who take my class and the University as a whole.

6Broadly speaking, psychiatrists assign medication, while therapists/psychologists will talk with you. The latter are trained to ask the right questions.
suffering in silence, so please do not hesitate to make use of the services provided by SHCS if you need them. Please see SHCS’ mental health webpage for services and contact information (https://wellness.uchicago.edu/mental-health/). And if you are having serious mental, physical, or other problems, immediately contact the urgent medical care line at (773) 702-4156.

Diversity Statement

UChicago is committed to diversity and rigorous inquiry that arises from multiple perspectives. I concur with this commitment and view the diversity that students bring to my class as a resource and a benefit to learning. I expect to maintain a productive learning environment based on open communication, mutual respect, and non-discrimination. I strive to present materials in a way that is respectful of diverse student backgrounds. As there can always be a gap between intent and execution, suggestions for promoting a positive and open environment are welcomed. Please feel free to correct me on your preferred name and gender pronouns if necessary.

Responsible Employees (Title IX)

All University of Chicago faculty and TAs are classified as “Responsible Employees.” As such, they are required to report any discussions of sexual misconduct, dating violence, domestic violence or stalking to the Title IX Coordinator for the University. This includes the identities of the student making the complaint and alleged perpetrator. You will receive an email once a report is filed, but you are not obligated to meet with anyone or engage in the process. Alternatively, there are “Confidential Resource” employees at the University who do not have an obligation to share identifying information. For more information, including phone numbers, see the UChicago UMatter website (https://umatter.uchicago.edu/find-support/).

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (grading) statement (aside from those I have already noted), this syllabus is a guide for the course and is subject to change with advance notice.
Tentative Course Outline

The weekly coverage might change as it depends on the progress of the class.

<table>
<thead>
<tr>
<th>Week</th>
<th>Week Of</th>
<th>Date</th>
<th>Day</th>
<th>Class</th>
<th>Online</th>
<th>Readings</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>September 28</td>
<td>09/30</td>
<td>Wed</td>
<td>Preliminaries</td>
<td>Stats/OLS Review</td>
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<tr>
<td>2</td>
<td>October 5</td>
<td>10/07</td>
<td>Wed</td>
<td>Counter-factual Outcomes Problem</td>
<td>Treatment Parameters</td>
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<tr>
<td>3</td>
<td>October 12</td>
<td>10/14</td>
<td>Wed</td>
<td>Single-Difference Estimators</td>
<td>Experiments</td>
<td></td>
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<tr>
<td>4</td>
<td>October 19</td>
<td>10/21</td>
<td>Wed</td>
<td>Experiments</td>
<td>Difference-in-Differences</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>October 26</td>
<td>10/28</td>
<td>Wed</td>
<td>Difference-in-Differences</td>
<td>Instrumental Variables</td>
<td></td>
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<tr>
<td>6</td>
<td>November 2</td>
<td>11/04</td>
<td>Wed</td>
<td>Instrumental Variables</td>
<td>Regression Discontinuity</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>November 9</td>
<td>11/11</td>
<td>Wed</td>
<td>Regression Discontinuity</td>
<td>Matching</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>November 16</td>
<td>11/18</td>
<td>Wed</td>
<td>Matching</td>
<td>Synthetic Control</td>
<td></td>
</tr>
<tr>
<td></td>
<td>November 23</td>
<td>11/25</td>
<td>Wed</td>
<td>NO CLASS – Thanksgiving Break!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>November 30</td>
<td>12/02</td>
<td>Wed</td>
<td>Ethics</td>
<td>Permutation Inference</td>
<td></td>
</tr>
</tbody>
</table>