Course Description:
This course explores different research strategies to identify causal effect in the social sciences. Causal effects are interesting whenever we want to understand mechanisms. As an example, we can think of the case of wage differentials across gender. This may be due to either discrimination or differences in background characteristics. Usually we would like to think about discrimination as a social mechanism whereas differences in background characteristics would usually not be interpreted as a mechanism. Therefore, it may be important to be able to tell why there is pay differences across gender. To show causal effects the provision of a statistical relationship is usual not enough. The fundamental problem in identifying causal effects is therefore a matter of research design and research strategy. We will examine methods such as instrumental variables, regression discontinuities, propensity score matching, natural experiments, differences-in-differences, and randomized controlled trials. These methods all attempts to identify causal methods through various assumptions. The relevance of these different assumptions may or may not be applicable in a particular situation. The courses requires working knowledge of linear regression analysis. However, we begin with a review of standard linear regression analysis and then explain the shortcomings of this approach in the context of non-experimental data. Second, the course addresses the benefits of experimental data in terms of improving causal inference and also introduces several recent methods designed to improve causal statements from non-experimental and observational data. We will be using the statistical package Stata. How to use the different procedures in Stata will be introduced as we go along and there will be hands on exercises during the course.

Prerequisite(s):
Enrolment in fourth year of one of the Honors Specializations or Honors Double Major in Sociology.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. The decision may not appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Antirequisite(s):
None
Learning Outcomes:
Identify an appropriate research question to investigate a causal relationship

Apply an appropriate research design to answer a causal research question

Understand a range of research methods to identify causal relationship from quantitative data

Required Text(s):


Method of Evaluation:
Grading will be based on a midterm test, and a data analysis project with a presentation.

*Evaluation Breakdown:*
Midterm Test (50%), Presentation (50%).

How to Contact Me:
aholm@uwo.ca 519 6612111 ext 21111

How to get important information:
All course material except Joshua D. Angrist & Jörn-Steffen Pischke (2014) *Mastering Metrics The Path from Cause to Effect* Princeton University Press will be made available through OWL or provided in class

Important Policies

*Policies for Assignment Deadlines:*
 Policies for Assignment Deadlines: Late assignments will be penalized 5% per day (including weekends) except in the case of extreme and serious documented circumstances, discussed with me in advance and following the same procedures describe above related to missed exams. Please note that computer problems are not an excused circumstance. You are expected to follow good computer practices, including backing up your work.
A Note on Plagiarism:
Students must write their assignments in their own words. Whenever students take an idea from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major scholastic offence (the Scholastic Offence Policy can be viewed in the Western Academic Calendar).

Plagiarism Checking:
All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (www.turnitin.com).

Policies on Examinations
Calculators and Crip sheets are allowed both during the midterm and the final exam.

Policy on Laptops and other Electronics/Phones in Class:
Laptops are permitted in class but if it is observed that students are on social networking sites such as Facebook or Twitter, they will be told to close the lid and they will not be permitted to use it for the remainder of the class. Be sure that all cell phones are turned off at the beginning of class.

Policy on Accommodation for Medical Illness
Western’s policy on Accommodation for Medical Illness can be found at www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

Students must see the Academic Counsellor and submit all required documentation in order to be approved for certain accommodation: http://counselling.ssc.uwo.ca/procedures/medical_accommodation.html

Accessibility Options:
Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519 661-2111 x 82147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar’s website: www.registrar.uwo.ca/examinations/accommodated_exams.html

Scholastic Offences
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following web site: www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Mental Health
Students who are in emotional/mental distress should refer to Mental Health@Western (http://uwo.ca/health/mental_wellbeing/index.html) for a complete list of options how to obtain help.
## Course Schedule and Readings: Overview of Course Schedule

<table>
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<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Notes Whether We Have a Lab Session</th>
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<tr>
<td>1</td>
<td>11-01-18</td>
<td>Introduction. Causal effects.</td>
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<tr>
<td>2</td>
<td>18-01-18</td>
<td>Review of Linear regression models, assumption and causal interpretation</td>
<td>Mastering metrics, chapter 2</td>
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<tr>
<td>3</td>
<td>25-01-18</td>
<td>Review of linear regression models, statistical inference</td>
<td>Lab session</td>
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<tr>
<td>4</td>
<td>01-02-18</td>
<td>Introduction to the counter factual framework</td>
<td>Handbook chapter 1, pp 22-30.</td>
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<td>5</td>
<td>08-02-18</td>
<td>How RCT solves the counterfactual problem</td>
<td>Mastering Metrics, chapter 1, Handbook chapter 3.</td>
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<td>7</td>
<td>01-03-18</td>
<td>Reading Week</td>
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<td>8</td>
<td>08-03-18</td>
<td>Difference in difference analysis</td>
<td>Handbook, chapter 5, Mastering metrics, chapter 5.</td>
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<td>9</td>
<td>15-03-18</td>
<td>Instrumental variables</td>
<td>Handbook chapter 6, Mastering metrics chapter 3</td>
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<td>10</td>
<td>22-03-18</td>
<td>Causal inference with non-continuous outcomes</td>
<td>TBA</td>
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<td>11</td>
<td>29-03-18</td>
<td>Workshop – Student’s projects.</td>
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<td>12</td>
<td>05-04-18</td>
<td>Final exam if no presentation</td>
<td></td>
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