

McGill University
INTD 356: Quantitative Methods for Development
Fall 2023

Regular Classes

Lectures: Monday and Wednesday 10:05 AM – 11:25 AM
Schedule: 08/30/2023 - 12/04/2023 at MCMED 1034

Instructor Contact Information

Mamadou Yaya Diallo
E-mail: mamadou.y.diallo@mcgill.ca
Office hours: Monday 1:00 PM – 3:00 PM at 3610 McTavish, Room 16-4 (*first floor, turn right, then left*).

TA Contact Information

Sanah Sarin
sanah.sarin@mcgill.ca
Weeks: 3-15
Office hours: Tuesday 09:00 AM – 10:00 AM (link available on myCourse)
Conferences: Friday 12:35 PM – 1:35 AM (location **TBA**)

Prerequisites

There is no prerequisite for this course.

Course Description and Goals

Do conditional cash transfers in Mexico and Brazil improve health and schooling outcomes among the poor? Does building new roads raise welfare in a remote area in Tanzania? Has the Grameen Bank succeeded in lowering poverty in rural Bangladesh? From governments to NGOs, from microfinance institutions to health providers, organizations around the world implement policies and programs with the goal of improving living standards. Do these interventions work? How do we measure and evaluate impact? This course provides an introduction to quantitative methods for impact evaluation. We will start from the very basic concepts in statistics and then introduce an intuitive conceptual framework to think about causal effects, i.e. whether program X has a causal impact on outcome Y. The students will be taught how to engage with simple but rigorous data analytics, design and implement randomized controlled trials, run regression analysis, or implement other main methods for impact evaluation. A key component of the course will be graded assignments where students will work with data and use statistical software.

By the end of the course, students are expected to:

- understand the basics of statistical concepts and causality;
- demonstrate familiarity with key methods for impact evaluation in development;
- be able to perform simple statistical tasks in STATA;
- be able to design a research plan for impact evaluation.

Evaluation

Your final grade for this course will be based on the following:

	Assignment	share	Deadline
1	Take-home Assignments #1	10%	Wed, September 27
2	Midterms #1	20%	Mon, October 16,
3	One-page proposal to send by e-mail	5%	Mon, October 23
4	Take-home Assignments #2	15%	Wed, November 1
5	Midterms #2	20%	Mon, November 20
6	Take-home Assignments #3	15%	Mon, December 04
7	Project Evaluation Proposal	15%	Mon, December 18

40% - Take-home Assignments. This part of your grade will be based on three (3) assignments. These assignments will be take-home and must be completed within one week. Please refer to the calendar above for the corresponding deadline.

20% - Midterms #1. In the 8th week of lectures (10/16), you will be tested on readings and lectures covered up to that point. The test will include both multiple-choice—you will need to justify your choice, and open-ended short questions. The test will take place in class and will last approximately 1 hour 20 minutes.

20% - Midterms #2. In the 13th week of lectures (11/20), you will be tested on readings and lectures that have been covered from October 16 up to that point. The test will include both multiple-choice—you will need to justify your choice, and open-ended short questions. The test will take place in class and will last approximately 1 hour 20 minutes.

20% - Project Evaluation Proposal. For this evaluation, your grade will be based on the elaboration of an original project evaluation proposal. You will work with three other students (groups of 4 members). You are expected to:

- i.** Identify and document a particular development related issue, a constraint or impediment to economic growth, including education, health, gender issues.
- ii.** Propose an intervention aimed to ease or remove the constraint you have identified,
- iii.** Propose an empirical strategy for the evaluation of your intervention.

Approach this task as a team of government advisors. Your job is to convince the government that the problem you chose is important, your proposed solution makes sense, and you have an effective research design to test for whether your intervention has impact.

Evaluation of the project will be based on the following:

- **5% - Proposal.** You will be required to submit a one-page proposal for your evaluation project. In this proposal, outline your research question, proposed method, data sources, and a list of references you intend to use. I will give you feedback on the proposal;
- **5% - Presentation.** Each group will give a presentation in front of the class during one of the last lectures. In that occasion we will also discuss the project all together with your colleagues. Each one of the group members will be required to talk during the presentation for a fair amount of time and content;

<p>In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.</p>
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- **10% - Final Paper**. You will be asked to hand in a final paper (15 pages maximum) describing your evaluation project in detail.

Calendar

Please have clear the following key dates:

- **Wed, September 27**, Deadline for Assignment #1
- **Mon, October 02**, Proposal of group composition to be sent by e-mail
- **Mon, October 16**, First Midterm
- **Mon, October 23**, Deadline for one-page project proposal
- **Wed, November 1**, Deadline for the Assignment#2
- **Mon, November 20**, Second Midterm
- **Mon, December 4**, Deadline for Assignment #3
- **November 27 to December 4**, Presentations (10 min each + 5 min discussion)
- **Mon, December 18**, Deadline to send the final paper

Software

The software used in lab sessions and lectures is STATA. To get started with STATA, you can use free education resources here. STATA is not an open-source software. You can access this software via two options:

- STATA/SE is available for McGill students. Instructions on how to download and activate STATA will be provided via myCourses.
- STATA is also installed on a limited number of computers in these places: Redpath Library Building 2nd floor, McLennan Library Building Data Lab – 2nd floor (M2-37A), and Macdonald Campus Library eZone.

To get started with Stata, watch the movies and use the data at <https://stats.idre.ucla.edu/stata/>. To complete assignments, students are welcome to use other statistical software, e.g. R, SPSS and Python.

Course Outline and Readings

I will upload lecture slides and notes each week. These are essential materials, crucial to prepare for assignments, midterms, and group projects.

Several chapters of the following books (and datasets) will be used to introduce you to several topics during the course:

- Angrist, Joshua D., and Jörn-Steffen Pischke. 2014. *Mastering 'metrics: The path from cause to effect*. Princeton University Press. [[link](#)]
- Datasets and documentation for practice using STATA available at: <https://www.masteringmetrics.com/resources/>
- Gertler, Paul J.; Martinez, Sebastian; Premand, Patrick; Rawlings, Laura B.; Vermeersch, Christel M. J.. 2016. *Impact Evaluation in Practice, Second Edition*. Washington, DC: Inter-American Development Bank and World Bank. [[link](#)]

- Khandker, Shahidur R.; Koolwal, Gayatri B.; Samad, Hussain A. 2010. *Handbook on Impact Evaluation : Quantitative Methods and Practices*. World Bank.

- Datasets and documentation for practice using STATA available at:
<https://microdata.worldbank.org/index.php/catalog/436>

Course plan

Some topics might be subject to (mostly minor) revisions during the term.

Week	Date	
Introduction		
1	Wed 08/30	Introduction to Quantitative Methods in Development Economics <ul style="list-style-type: none"> Gertler et al. (2016) – Chapter 1: Why evaluate?
2	Mon 09/04	<i>Labour Day (holiday)</i>
Fundamentals of Statistics		
2	Wed 09/06	Descriptive Statistics, Data description
3	Mon 09/11	Probability Distribution, Sampling, Sample estimation
3	Wed 09/13	Hypothesis Testing
<i>Fri 09/15 - Conference #1: Introduction to Stata and Introduction to Statistics</i>		
Fundamentals of Causal Inference		
4	Mon 09/18	Causal Inference I <ul style="list-style-type: none"> Angrist and Pischke (2014) – Chapter 1 Gertler et al. (2016) – Chapter 3
4	Wed 09/20	Causal Inference II
Randomized Controlled Trials (RCTs) in Development Economics		
5	Mon 09/25	Randomized Controlled Trials <ul style="list-style-type: none"> Angrist and Pischke (2014) – Chapter 1 Gertler et al. (2016) – Chapter 4 Khandker et al (2010) – Chapter 12
5	Wed 09/27	Randomized Controlled Trials: Case Study <ul style="list-style-type: none"> Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Parienté, W., Shapiro, J., Thuysbaert, B. and C. Udry (2015), “A multifaceted program causes lasting progress for the very poor: Evidence from six countries,” <i>Science</i>, 348(6236): 1260799. (link) Karlan, D. (2015), “The Multi-Lateral Development Banks: A Strategy for Generating Increased Return on Investment. Testimony before the U.S. House Committee on Financial Services.” (link)
<i>Class 8: Deadline for the Assignment #1 to send before</i>		
5	<i>Fri 09/30 - Conference #2: Assignment 1</i>	
Linear Regression		
6	Mon 10/02	Linear Regression <ul style="list-style-type: none"> Angrist and Pischke (2014) – Chapter 2
<i>Proposal of group composition to be sent by e-mail.</i>		
6	Wed 10/04	Multiple linear regression

- de Mel, S., McKenzie, D. J., and Woodruff, C. (2008), "Returns to capital in microenterprises: Evidence from a field experiment," *Quarterly Journal of Economics*, 123(4): 1329-1372. ([link](#))

Fri 10/6 - Conference #3: Midterm 1 Preparation

7	Mon 10/9 Wed 10/11	Reading Break
8	Mon 10/16	Midterm #1

Difference-in-differences

8	Wed 10/18	Difference-in-differences method <ul style="list-style-type: none"> • Angrist and Pischke (2014) – Chapter 5 • Gertler et al. (2016) – Chapter 7 • Khandker et al (2010) – Chapter 14
9	Mon 10/23	Difference-in-differences method: case study #1

Panel Data Analysis

9	Wed 10/25	Panel Data Analysis I <ul style="list-style-type: none"> • Khandker et al (2010) – Chapter 14
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Friday 10/27- Conference #4: Reviews Midterm 1

10	Mon 10/30	Panel Data Analysis II <ul style="list-style-type: none"> • Hicks, J. H., Kleemans, M., Li, N. Y., and Miguel, E. (2020). "Reevaluating Agricultural Productivity Gaps with Longitudinal Microdata", <i>Journal of the European Economic Association</i>, forthcoming. (link)
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Instrumental Variables

10	Wed 11/1	Instrumental Variables I <ul style="list-style-type: none"> • Angrist and Pischke (2014) – Chapter 3 • Gertler et al. (2016) – Chapter 5 • Khandker et al (2010) – Chapter 15
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Deadline for the Assignment #2 to send before

11	Mon 11/6	Instrumental Variables II: case study <ul style="list-style-type: none"> • Acemoglu, D., Johnson, S., and Robinson, J. A. (2001), "The Colonial Origins of Comparative Development: An Empirical Investigation." <i>American Economic Review</i>, 91(5): 1369-1401. (link) • Atkin, D., Khandelwal, A. and A. Osman (2017), "Exporting and Firm Performance: Evidence from a Randomized Experiment," <i>Quarterly Journal of Economics</i>, 132(2): 551-615. (link)
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RDD

11	Wed 11/8	Regression discontinuity Design I <ul style="list-style-type: none"> • Angrist and Pischke (2014) – Chapter 4 • Gertler et al. (2016) – Chapter 6
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- Khandker et al (2010) – Chapter 16

11 *Friday 11/10- Conference #5: Reviews Assignment 2*

12 **Mon** Regression discontinuity Design II : Case Study
11/13

- Meller, M., and Litschig, S. (2014), “Saving Lives: Evidence from a Conditional Food Supplementation Program,” *Journal of Human Resources*, 49(4): 1014-1052. ([link](#))

12 **Wed** Inferences Topics
11/15
Friday 11/17- Conference #6: Midterm 2 Preparation

Class Presentation

13 **Mon** *Midterm #2*
11/20
 13 **Wed** *Administrative Data in Developing Countries*
11/22
Friday 11/25- Conference #7: Reviews Midterm 2

14 **Mon** Class Presentations
11/27
 14 **Wed** Class Presentations
11/29
 15 **Thu** Class Presentations
11/30
 15 **Mon** Class Presentations
12/04

My E-mail Policy

I will make every effort to respond to your emails within 48 hours. However, there may be instances where this is not feasible. Additionally, I kindly request that emails remain concise and straightforward.

- Consider e-mailing your TA first. I reserve the right to forward them your e-mails whenever I find appropriate to do so.
- Short e-mails to which I can answer ‘yes’ or ‘no’ will be answered more quickly.
- For questions on the content of the course, please come to my office hours, or the TA’s office hours.
- For administrative questions, please refer to this detailed syllabus.

My Office Hours

My office hours and sometimes lectures may be cancelled and rescheduled in some cases. I will make sure to announce this to the class.

TA Office Hours

TA office hours will be held in-person throughout the semester. It will be one hour long (more if needed). Students are encouraged to attend office hours before sending questions by email.

Academic Policies

Academic Integrity: McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures.

Language of Submission: In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

Extraordinary Circumstances: In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

Copyright: All slides, video recordings, lecture notes, etc. remain the instructor's intellectual property. As such, you may use these only for your own learning (and research, with proper referencing/citation) ends. You are not permitted to disseminate or share these materials; doing so may violate the instructor's intellectual property rights and could be cause for disciplinary action.

Lecture/Conference/Seminar Recording: By enrolling in a remote course, you accept that fixed sessions will be recorded. You must consent to being recorded if you are attending a lecture or participating in a component of a course that is being recorded. You will be notified through a "pop-up" box in Zoom if a lecture or portion of a class is being recorded. If you are not comfortable being in a class that is recorded, you may decide to not take part by logging off Zoom. Students who log off will be able to later watch the video recording in MyCourses.

For pedagogical reasons and for the enrichment of the experience of all students, attendance may be monitored and/or active participation may be expected or required during fixed (synchronous) class time. As such, you may be asked to turn on your camera and audio. If you do not have the necessary resources (e.g., adequate Internet bandwidth or equipment) to do so, inform your instructor *at the beginning of term* so that appropriate accommodations can be made.

In addition to the recording of your image and voice, your name (or preferred name) may be displayed on screen, and your instructor may call your name during the lecture. As such, this personal information will be disclosed to classmates, whether during the lecture or in viewing the recording. By remaining in classes that are being recorded, you accept that personal information of this kind may be disclosed to others, whether during the lecture or in viewing the recording.

Netiquette: The University recognizes the importance of maintaining teaching spaces that are respectful and inclusive for all involved. To this end, offensive, violent, or harmful language arising in contexts such as the following may be cause for disciplinary action:

1. Username (use only your legal or preferred name)
2. Visual backgrounds
3. "Chat" boxes

To maintain a clear and uninterrupted learning space for all, you should keep your microphone muted throughout your class, unless invited by the instructor to speak. You should follow instructors' directions about the use of the "chat" function on remote learning platforms.

Indigenous Land Statement: McGill University is on land which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. We acknowledge and thank the diverse Indigenous people whose footsteps have marked this territory on which peoples of the world now gather.

Disability: If you have a disability, please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 398-6009 before you do this.

Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights. Visit www.mcgill.ca/students/srr for more information.