

McGill University
INTD 356: Quantitative Methods for Development
Fall 2020

Instructor Contact Information

Prof. Francesco Amodio
Leacock Building, Room 514
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Office hours: Monday 1:00 to 3:00pm (Montreal time) via Zoom

TA Contact Information

Mani Chakrabarty
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Office hours: Friday 11:30am to 12:30pm (Montreal time) via Google Hangouts

Regular Classes

Monday and Wednesday 10:05am to 11:25am (Montreal time)

Lectures will be held via Zoom during the assigned time slot, with one hour maximum of “fixed” content and the remainder being “flexible” (Q&A, etc.). All sessions will be recorded and made available online.

Prerequisites

None.

Course Description and Goals

“NOW, what I want is, Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else, and root out everything else. You can only form the minds of reasoning animals upon Facts: nothing else will ever be of any service to them. This is the principle on which I bring up my own children, and this is the principle on which I bring up these children. Stick to Facts, sir!”

(Charles Dickens, *Hard Times*)

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.

Evaluation

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

40% - Take-home Assignments. This part of your grade will be based on three (3) assignments contributing 10%, 15%, and 15% respectively to your final grade. These will be take-home, and you will have one week to complete them. See calendar below for the relevant dates.

20% - First Open-book Midterm. In the 7th week of lectures, you will be tested on the material covered up to that point. The test will include both multiple-choice – you will need to justify your choice – and open ended questions. The test will take place via myCourses. It will be accessible for a period of 48 hours. Once you access the exam, you will have 3 hours to complete and upload your answers to myCourses.

20% - Second Open-book Midterm. In the 12th week of lectures, you will be tested on the material covered from week 8 up to that point. Format will be as above.

If you miss any of the two Midterms, you will have to take **a separate test** on the 14th week of lectures during extra time, and you will be tested on **ALL** the material covered in class from the very beginning.

20% - Project Evaluation Proposal. This part of your grade will be based on the elaboration of an original project evaluation proposal. You will work in groups of 5 members.

In your project, you are asked 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, and (iii) propose an empirical strategy for the evaluation of your intervention. You should think about yourself as being a team of government advisors. You need to convince the government that you have identified a relevant problem, that the intervention you propose has the potential of solving or at least mitigating it, and that 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 asked to hand in a one-page proposal of your evaluation project. I will give you feedback on the proposal and we will settle on a plan;
- **5% - Presentation.** Each group will give an online presentation in front of the class during one of the last lectures, or record it beforehand so that we can stream it during 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;
- **10% - Final Paper.** You will be asked to hand in a final paper (15 pages maximum) describing your evaluation project in detail.

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

Calendar

Please have clear the following key dates:

- **Mon, September 28**, Deadline for Assignment #1
- **Wed, September 30**, Proposal of group composition to be sent by e-mail

- **Wed, October 14**, First Midterm
- **Wed, October 21**, Project one-page proposal to be sent by e-mail
- **Mon, November 2**, Confirmation of topic and deadline for Assignment #2
- **Wed, November 9**, Presentation schedule out
- **Wed, November 18**, Second Midterm
- **November 23 to December 3**, Presentations (15 min each + 5 min discussion)
- **Mon, December 7**, Deadline for Assignment #3
- **Mon, December 14**, Deadline to send the final paper

Software

The software we will use in class sessions, demonstrations, and assignments is STATA. This is not an open source software and is available at lab computers on campus. Since access to the campus is limited during the COVID-19 pandemic, the Faculty of Arts is making STATA/SE version 16 available for use in statistics courses as well as for research purposes during the Fall term. This way, students, instructors and researchers can use STATA without being on campus. Instructions on how to download and activate STATA will be provided via myCourses. 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 and SPSS.

Course Outline and Readings

I will upload lecture slides and notes each week. These are essential material, 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>

September 2: Introduction

- Gertler et al. (2016) – Chapter 1

September 9-14-16: Fundamentals of Probability and Statistics

September 21-23: Fundamentals of Causal Inference

- Angrist and Pischke (2014) – Chapter 1
- Gertler et al. (2016) – Chapter 3

September 28-30: Randomized Controlled Trials

- Angrist and Pischke (2014) – Chapter 1
- Gertler et al. (2016) – Chapter 4
- Khandker et al (2010) – Chapter 12
- 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,” *Science*, 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](#))

October 5-7-14: Linear Regression

- Angrist and Pischke (2014) – Chapter 2
- 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](#))

October 19-21: Difference-in-Differences

- Angrist and Pischke (2014) – Chapter 5
- Gertler et al. (2016) – Chapter 7
- Khandker et al (2010) – Chapter 14
- Amodio, F., Baccini, L., and Di Maio, M. (2020), “Security, Trade, and Political Violence,” *Journal of the European Economic Association*, forthcoming. ([link](#))

October 26-28: Panel Data Analysis

- Khandker et al (2010) – Chapter 14
- Hicks, J. H., Kleemans, M., Li, N. Y., and Miguel, E. (2020). “Reevaluating Agricultural Productivity Gaps with Longitudinal Microdata”, *Journal of the European Economic Association*, forthcoming. ([link](#))

November 2-4: Instrumental Variables

- Angrist and Pischke (2014) – Chapter 3
- Gertler et al. (2016) – Chapter 5
- Khandker et al (2010) – Chapter 15
- Acemoglu, D., Johnson, S., and Robinson, J. A. (2001), "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review*, 91(5): 1369-1401. ([link](#))
- Atkin, D., Khandelwal, A. and A. Osman (2017), “Exporting and Firm Performance: Evidence from a Randomized Experiment,” *Quarterly Journal of Economics*, 132(2): 551-615. ([link](#))

November 9-11: Regression Discontinuity Design

- Angrist and Pischke (2014) – Chapter 4
- Gertler et al. (2016) – Chapter 6
- Khandker et al (2010) – Chapter 16
- Meller, M., and Litschig, S. (2014), “Saving Lives: Evidence from a Conditional Food Supplementation Program,” *Journal of Human Resources*, 49(4): 1014-1052. ([link](#))
- Amodio, F., Chiovelli, G., and Hohmann, S. (2020), “The Employment Effects of Ethnic Politics,” Working Paper. ([link](#))

November 16: Matching

- Gertler et al. (2016) – Chapter 8
- Becerril, J., and Abdulai, A. (2010), “The Impact of Improved Maize Varieties on Poverty in Mexico: A Propensity Score-Matching Approach,” *World Development*, 38(7): 1024-1035. ([link](#))

November 18: Non-standard Standard Errors

November 23 to December 3: Class Presentations

Notice make-up lecture on Thursday, December 3.

My E-mail Policy

I will try to reply to your e-mail within 48 hours. However, this will not always be possible. Also, please keep the e-mails short and simple.

- 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 online throughout the semester. It will be one hour long (more if needed), on the Google Hangouts platform. **Please make sure to download Google Hangouts as soon as possible.** The one hour office hour will be divided among four 15 minute slots, and the slot selections and times of the office hours will be posted on myCourses each week. Students are required to select a time slot that best works for them, and send questions to be discussed with TA approximately two days ahead. The registered students will then receive a link to the google hangouts platform where the office hours will take place. Students are also encouraged to download one notes (provided for free for McGill students), where they can screen share and share their thoughts in writing 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.