IDEV*3400:
Managing and Evaluating Change in Development

International Development Studies
University of Guelph

Winter 2021
Ryan Briggs

Classes: Tuesday and Thursday, 11:30-12:50, online via zoom
My office hours: Tuesday 1-3pm, online via zoom
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TA: Ichelle Goulet Colmenero
TA email: igouletc@uoguelph.ca
TA office hours: online via zoom, Wed 2:30-3:30 (programming homework), Fri 2:30-3:30
                (overall content)

Course Description

This course explores the key practical skills required by those engaged in the implementation of development policy and practice including logical frameworks, theories of change, impact assessment, and project management. It aims to equip students with an understanding of the nature of these techniques, and how and where they are employed. The strengths and weaknesses of these techniques and their implications for development policy and practice are explored.

The course is divided into four sections, all of which build cumulatively:
1. *Causal identification*: How can we use experiments to learn the effects of some intervention?
2. *Coding*: How can we tell computers how to analyze data?
3. *Statistics*: Sometimes things work or fail because of random chance. How do we quantify the likelihood of these sort of random events and separate the effects of randomness from the effect of a project?
4. *Project evaluation*: How do we apply all of the above skills to development projects?

Learning Outcomes

By the end of this course, successful students will be able to:
1. Explain why causal inference in social systems is often difficult
2. Write and debug simple R scripts
3. Understand basic statistical issues such as bias, generalizing from samples to populations, confidence intervals, and hypothesis tests

4. Understand the basics of project evaluation, including theories of change and and measurement issues
5. Create a plan to run a simple RCT and be able to evaluate the resulting data

Readings

The required texts for the course are:

- Glennerster, R., & Takavarasha, K. (2013). *Running randomized evaluations: A practical guide.* Princeton University Press.
- Ismay, C., & Kim, A. Y. (2019) *Modern Dive: Statistical Inference via Data Science.* https://moderndive.com/index.html
  - Note: the Ismay and Kim book is a free, online textbook.

Readings for each week are listed below. Any readings aside from the required text will either have a URL or will be posted on Courselink.

RStudio.Cloud

In the course we will use the programming language R instead the RStudio Cloud environment. You can make a free account for RStudio.cloud here: http://rstudio.cloud/. Instructions on how to sign into the course's page on RStudio cloud are posted on courselink.

Assessments

Assignment	Value	Learning Outcome	Due Date
Quizzes (7)	10%	1, 2, 3, 4, 5	Rolling
Programming homework (4)	10%	2,3,4,5	Jan 27, Feb 5, Feb 22, March 5
Midterm exam	25%	1, 2, 3	March 16
Group Project Proposal	25%	2, 3, 4, 5	March 25
Group Project Analysis Paper	30%	2, 3, 4, 5	April 15

Quizzes

Throughout the course there will be 7 quizzes. These will test core concepts in causal identification, programming, and statistics. They are short and serve the goal of reinforcing what we learned and revealing to me when are where the class is confused. When a day has a quiz, it should be done after class but before 11:30pm that night. I will automatically drop everyone's lowest 2 quiz grades, so it isn't a big deal if you miss or fail two (and there is no need for you to 'defend' your absence).

Programming practice assessments

Throughout the course there are 4 short programming practice assignments. These are hosted on RStudio.cloud. You will do the programming practice assessments to the best of your ability and then save your notebook on your computer as both an R Notebook and a knitted html document (I

have a video showing you how to do this on courselink). You will then upload both files to the correct dropbox. I will drop your lowest single score on this assessment.

Midterm Exam

This is a cumulative test that covers causal identification, basic statistics, and basic programming. My goal is not to trick you, but rather to create a hurdle that forces people to learn what they may have not learned before. I do this so that everyone is more likely to be on the same page when we get to the group work. The midterm exam will take place on RStudio.Cloud and will be handed in similarly to the programming practice assessments.

Group Project Proposal

Working in small groups, you will write a short project proposal. You will have a brief theory of change, a list of your 1-2 dependent variables and how you will measure them, your treatment variable and how you will measure it, other relevant independent variables and how you will measure them, your unit of analysis, you population and sample, and your randomization procedure. Based on your proposal, I will then create simulated data that you will later analyze. Extended instructions are posted to courselink.

Group Project Analysis Paper

This is your final paper. You will explain everything from your proposal, but also include your results. You will work in the same groups. You will the paper as an R Notebook, which means that I will be able to see all of your code alongside your results. Extended instructions are posted to courselink.

Other Resources

For a variety of reasons (e.g. you want help, you think it's super fun) you may want more opportunities to practice R. To keep things at a good level for an introductory class, I am teaching a style of coding in R that is usually called "tidy R." A number of other places offer additional support or opportunities to practice tidy R. None of these resources assume a high level of knowledge.

1. RStudio.Cloud has a section called "primers" that has really good practice problems. The first four primers (top row) are relevant to the course and very good.
2. There are lots of R "cheat sheets." Here are some for:
    1. Data wrangling: https://rstudio.com/wp-content/uploads/2015/02/data-wrangling-cheatsheet.pdf
    2. Data visualization: https://rstudio.com/wp-content/uploads/2016/11/ggplot2-cheatsheet-2.1.pdf
    3. Others are available here: https://rstudio.com/resources/cheatsheets/
3. There are many free tutorials and textbooks online. For example, R for Data Science is an excellent and free resource for beginners: https://r4ds.had.co.nz

4. If you're stuck on a programming problem, someone else has probably already gotten stuck on the problem and asked how to solve it and gotten an answer on stackoverflow: https://stackoverflow.com/questions/tagged/r

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Weekly Schedule

#	Date	Topic	Readings and assignments
1	Jan 12	Syllabus day	None
2	Jan 14	Basics of causal inference	• RRE: Chapter 1
3	Jan 19	Experiments!	RRE: Chapters 2 & 3 Singer, P., Arthur Baker, and Johannes Haushofer (2019). Are Randomized Poverty-Alleviation Experiments Ethical? https://www.project-syndicate.org/commentary/ethics-of-random-controlled-trials-to-fight-poverty-by-peter-singer-et-al-2019-11
4	Jan 21	Datasets, variables, "tidy data." Introduction to R, R Studio, and R notebooks	• https://moderndive.com/1-getting-started.html
5	Jan 26	Datasets, variables, "tidy data." Introduction to R, R Studio, and R notebooks	None
6	Jan 28	Basics of graphing	• https://moderndive.com/2-viz.html • Skim this: https://www.autodeskresearch.com/publications/samestats • Skim this: https://medium.com/bbc-visual-and-data-journalism/how-the-bbc-visual-and-data-journalism-team-works-with-graphics-in-r-ed0b35693535
7	Feb 2	Basics of manipulating data	• https://moderndive.com/3-wrangling.html
8	Feb 4	Applications	None
9	Feb 9	Sampling and quantifying uncertainty	• RRE: Chapter 6, pages 241-264 • https://moderndive.com/7-sampling.html
10	Feb 11	Bootstrapping and confidence intervals	• https://moderndive.com/8-confidence-intervals.html
11	Feb 23	Hypothesis testing & differences in means	• RRE: Chapter 8, pages 325-340. • https://moderndive.com/9-hypothesis-testing.html
12	Feb 25	Review of bootstrapping and permutation tests	None
13	Mar 2	Kinds of experiments	• RRE: Chapter 4
14	Mar 4	Measurement	• RRE: Chapter 5
15	Mar 9	Open class (used to review whatever we want)	None
16	Mar 11	Midterm review	None
17	Mar 16	Midterm exam	None

18	Mar 18	Partial compliance and attrition	• RRE: Chapter 7, pages 298-313
19	Mar 23	Spillovers and evaluation effects	• RRE: Chapter 7, pages 314-323
20	Mar 25	Group work session	None—upload your intervention proposal to dropbox by end of today
21	Mar 30	Guest speaker: Martin Monkman Provincial Statistician & Director, BC Stats Ministry of Jobs, Economic Development & Competitiveness	None
22	Apr 1	Group work session	None
23	Apr 6	Group work session	None
24	Apr 8	Group work session, last class recap	None

University of Guelph Policy Statements

Trying our best during a global pandemic

You are trying to learn—and I am trying to teach—during a global pandemic. If we're lucky, all that will mean for us is that the semester will be more stressful than usual. I'm usually pretty strict with basically everything related to my courses, and I usually hold myself to the same high standard that I hold my students. For example, I expect things turned in on time and in return I grade material and get it back to students quickly. But seriously, there is a global pandemic going on. So let's just agree that we will all try our best. I will cut you some slack, and I expect you to cut me some slack, provided that we communicate with each other about our needs and constraints.

COVID-19 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the [COVID-19 website](#) and circulated by email.

Illness

The University will not require verification of illness (doctor's notes) for the fall 2020 or winter 2021 semesters.

E-mail Communication

As per University regulations, all students are required to check their @uoguelph.ca e-mail account regularly: e-mail is the official route of communication between the university and its students.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet a course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) via an email or in writing as soon as possible. See the Undergraduate Calendar for information on

regulations and procedures for Academic Consideration: https://www.uoguelph.ca/registrar/calendars/undergraduate.

Drop Date

The last date to drop one-semester Winter 2020 courses, without academic penalty, is April 3. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar: https://www.uoguelph.ca/registrar/calendars/undergraduate.

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Student Rights and Responsibilities

Each student at the University of Guelph has rights which carry commensurate responsibilities that involve, broadly, being a civil and respectful member of the University community. The Rights and Responsibilities are detailed in the Undergraduate Calendar: https://www.uoguelph.ca/registrar/calendars/undergraduate.

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor. The Academic Misconduct Policy is detailed in the Undergraduate Calendar under Undergraduate Degree Regulations and Procedures and then Academic Misconduct: https://www.uoguelph.ca/registrar/calendars/undergraduate.

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

Resources

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate programs. It can be found at: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/. If you find yourself in difficulty,

contact the undergraduate advisor in your program, or the BA Counselling Office: https://www.uoguelph.ca/baco/contact-baco.