COURSE.....	Casual Inference in Strategy Research
SEMESTER/YEAR...	2o./2019
PROGRAM.....	School of Methods
CLASS HOURS.....	15 hours
PROFESSOR.....	Rodrigo Bandeira de Mello, Dr.
LANGUAGE.....	English

COURSE OBJECTIVES

The major sources of data in strategy research comes from natural observations of sample units in their own settings. This is why empirical research in strategy has increasingly made use of sophisticated methods to overcome the major drawbacks of inferring causality from observational studies. This seminar covers the main designs and inference methods suitable for causal effect identification in observational studies. This content is an extension of the actual courses on quantitative methods in our graduate program. I address the topics of this course from a practical point of view, not from a purely statistical analysis. The statistical notation used here is sufficient to make the researcher more confident when discussing the "tricks of the trade" of various methods. The class is open to all qualified students from other research streams other than strategy.

LEARNING GOALS

The course learning goals are presented in the table below, showing how they contribute to the learning goals related to methods, for the *stricto sensu* graduate programs at FGV-EAESP.

Program learning goals	**Course learning goals**	**Level of contribution**
Scientific method	Critically analyze the existing publications that aims at testing causality	•••
Research project/procedures	Propose creative designs to identify causal effects for major problems in strategy research	•••
Quantitative research methods	Compute estimates for causal effects using R	•••

The full description of the learning goals of FGV-EAESP *stricto sensu* graduate programs can be found at `https://rebrand.ly/cursos-pos-eaesp`.

PREVIOUS KNOWLEDGE REQUIRED

These are the three prerequisites for this course:

- Research methods: proposing research questions, deriving hypotheses, identifying the basic research designs in quantitative research. These topics are covered in the course "Métodos de Pesquisa", mandatory for all grad students.
- Statistics: correlation, partial correlation, OLS regression, hypothesis testing, probability distributions. These topics are covered in the courses "Análise Multivariada de Dados" and "Metodos Quantitativos de Pesquisa".
- Computation: familiarity with any statistical software. I will teach the course using R software. You can download it for free here. This is a open-source software with great tutorials and resources available on line. Just google it. You need to use R with an integrated development environment (IDE), such as RStudio. You can downloaded RStudio for free here. A good suggestion are the tutorials provided by Dan Goldstein (tutorial 1 and tutorial 2) and DataCamp.I will integrate R with LaTeX, a free typesetting software that produces high-quality, professional-looking manuscript. The integration of LaTeXwith R, for instance, increases the productivity when writing-up the research paper. You can download the Texmaker 4.5 to use LaTeXin your computer `here`. You will find on youtube several tutorials on Texmaker. Some of them are `here`.

In order to help you to decide whether to take this course or not, please take the self-assessment test provided in addition to this syllabus.

CONTENT/METHODOLOGY

This is a hands-on, byod course that mixes readings, lectures, and practical computation using R and LaTeX. The textbook will provide the concepts I will be addressing in the classroom. The assigned readings are examples of high-quality causal empirical research. For each session, you will be required to come prepared to discuss the methods applied in these papers. However, one or more students will be specifically assigned to present their analysis to the class.

ASSESSMENT

Paper presentation (INDIVIDUAL) (40%): Course sessions for each topic rely on theory and examples of applications. One important part of this course is to discuss strengths and weakness of the decisions made by the authors of selected applications. During the course, you will provide your own evaluation for one or more papers using, at least, the content of this course. Please prepare a presentation on the following topics: a) question and motivation; b) contribution; c) hypotheses (in a graphical representation, if possible); d) design and estimation methods; e) your personal assessment. One slide per topic is sufficient. Item e) is the most important item for grading purposes.

Mid-week exam (GROUP) (30%): You will be asked to provide your interpretation of the R output tables for problems whose analyses used any of the methods covered in the first week.

This evaluation will take place on the Friday of the first week during the class time. The use of the textbook will be allowed but not the use of notebooks.

Final exam (INDIVIDUAL) (30%): This final evaluation will take place on the last day of our course during class time. You will be asked to write, and handle to me, your R code that solve a practical problem assigned to you, as well as the interpretation of the results (the use of Latex is a plus). You will also analyze the empirical strategy of an application.

COURSE SCHEDULE

Session (1): Course Introduction

- Course overview, requirements, and outline
- Introduction to R and Latex

Readings:

- Watch R and LaTeXtutorials before coming to class

Session (2): Causality, Endogeneity, and Quasi-Experiments

- The selection problem
- The potential outcome model
- Randomization and quasi-randomization

Readings:

- Angrist & Pischke (2009, chapter 1-2)
- Hamilton & Nickerson (2003)
- Chatterji et al. (2016)
- Suggested:
  - Sekhon & Titiunik (2012)
  - Bettis et al. (2014)
  - Bettis et al. (2016)

Session (3): Regression and Matching

- Selection on observables
- The propensity score

Readings:

- Angrist & Pischke (2009, chapter 3)
- Application:
  - Galilea et al. (2017)
  - Gabriel: Valentini (2012)
- Suggested:
  - Rubin (2001)
  - Caliendo & Kopenig (2005)
  - Imbens (2014)

Session (4): Fixed Effects

- Time-invariant (fixed) unobservables
- Practical considerations

Readings:

- Angrist & Pischke (2009, chapter 5)
- Certo et al. (2017)
- Application:
  - Ariel: Chakrabarti et al. (2007)
  - Costa et al. (2013)
  - Lazzarini et al. (2015)
- Suggested:
  - Seamans (2013)

Session (5): Instrumental Variables

- Local average treatment effects (LATE)
- The exclusion restriction and the “good" instrument
- Two-stage least squares

Readings:

- Angrist & Pischke (2009, chapter 4)
- Semadeni et al. (2014)
- Application:

  - Arreola & Bandeira-de Mello (2018)
  - Castaner & Kavadiz (2013)
  - Leticia: Flammer (2018)
- Suggested:
  - Bascle (2008)
  - Acemoglu et al. (2000)

Session (6): Differences-in-Differences

- Exogenous "shocks" and interaction with treatment
- Practical considerations

Readings:

- Angrist & Pischke (2009, chapter 5)
- Application:
  - Marisa: Bandeira-de Mello et al. (2018)
  - Charles: Hernandez & Kulchina (2018)
  - Chatterji & Toffel (2010)
- Suggested:
  - Bertrand et al. (2004)

Session (7): Regression-Discontinuity Design (Sharp)

- Identification
- Assumptions
- Estimation
- Practical considerations

Readings:

- Angrist & Pischke (2009, chapter 6)
- Application:
  - Flamer & Bansal (2017)
  - Bandeira-de Mello (2017)
  - Larissa: Dharmapala & Khanna (2017)

- Suggested:
  - Boas et al. (2014)
  - Imbens & Lemieux (2008)
  - Hahn et al. (2001)

Session (8): Final Exam

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Textbook

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