Course:CAUSAL INFERENCE IN MICROECONOMETRICS WITH APPLICATIONS TO PROGRAM EVALUATION

Reference	X000173	
Taught in	Doctoral School of Social and Behavioural Sciences and Belgian Graduate School in Economics	
Theory	(A)	33.0
Exercises	(B)	
Training and projects	(C)	
Studytime	(D)	240.0
Studypoints	(E)	8
Level	specialist	
Credit contract? (one mark)	☐ Unrestricted Access: student takes into consideration the conditions mentioned in Starting Competences ☒ Access is determined after successful competences assessment	
Examination contract? (one mark)	☐ Unrestricted Access: student takes into consideration the conditions mentioned in Starting Competences ☒ Access is determined after successful competences assessment ☐ This course can not be taken through an exam contract Motivation:	
Credit contract mandatory if Exam contract?	Course included in exam contract	
Retake possible?	Yes	
Teaching Language	English	
Lecturer	Bart Cockx	
Department	EB21	
Co-lecturers	William Parienté (Université catholique de Louvain)	

Key Words
Microeconometrics, evaluation methods, causal inference, natural experiments, social experiments (randomized controlled trials), matching, instrumental variables, discontinuity design, causal machine learning methods.

Position of the Course
The identification and estimation of causal relationships are central objectives of researchers in any field of research. In the last two decades, much econometric and statistical research has been done on the identification and the estimation of causal effects. The objective of the

course is to introduce the student to the "state of the art" of causal inference in micro-econometrics.

Much of the research on causal inference has been developed in the program evaluation literature, mostly evaluating social or employment programs. We often illustrate the methods covered in this course by examples from this field. However, the covered methods are increasingly applied to other fields, and are therefore useful to any empirical researcher who is interested in the identification and estimation of causal effects.

Contents
The lectures will take place each Monday from October 3 to December 12, 2022 between 10:30 and 12:00, and 13:00 and 14:30. The date of the exam is provisionally scheduled with a same timing on January 16, 2023.

Location: KULeuven, FEB, Campus Brussel, Room 4109 (4th floor), Hermes building, Stormstraat 2, 1000 Brussel (very close to Brussels Central Station).

The course covers methods that have recently become popular in the literature: natural and social experiments, matching, new interpretations of instrumental variable methods, discontinuity design, and causal machine learning methods. The heterogeneity of causal effects will be a specific focus.

Special attention will be paid to the practical aspects of an evaluation: acces to relevant data, identifying assumptions, estimation and interpretation of results. The course will concentrate more on the use of econometric methods than on their statistical properties, presumed to be known. It will also rather be focused on intuitions, than on proofs.

Starting Competences
Final competences in the course "Advanced Econometrics: Nonlinear Methods" (FHECON01000016) or equivalent. Knowledge of "classical" evaluation methods, such as Heckman selection correction models, standard interpretations of instrumental variables or GMM estimators and fixed effect estimators are prerequisites.

Final Competences
At the end of this course the PhD student should have acquired the most recent insights in the evaluation methods and causal inference. This should allow him/her e to apply these methods in his/her empirical research and/or to contribute to the scientific literature in this field.

Teaching and Learning Material
The course material will consist of slides, scientific articles and will make use of the software Stata® (version 13 or later).

References
The following article provides an overview of the covered topics:

Blundell, R. and M. Costa Dias (2009), "Alternative Approaches to Evaluation in Empirical Microeconomics", The Journal of Human Resources, 44 (3), 565-640.

A detailed reading list will be provided during the course.

Study Coaching
The teachers and assistant will be available for questions regarding the course. Didactical material (slides, scientific articles, exercices, computerprograms and datasets) will be posted on the digital learning platform Ufora (https://elosp.ugent.be/welcome)

Teaching Methods
Lectures, reading and group discussions of scientific articles, computer exercices.

Evaluation Methods (one mark)
☐ end-of-term evaluation
☐ permanent evaluation
☒ combined evaluation:
  , end-of-term evaluation **75** %
  , permanent evaluation **25** %

Examination Methods
Permanently: active participation in the discussion and evaluation of home assignments.
End-of-term: Take home written exam consisting in a critical analysis of a scientific article that hasn't been discussed during the lectures or presentation of empicical research within the student's doctoral project in which one of the methods that are discussed in the lectures are used. This written exam is complemented by an oral defense and subjected to a discussion with co-students.