

PhD Course: Causal Machine Learning

Center for Economic Behavior and Inequality (CEBI) and Department of Economics
University of Copenhagen, October, 4-6, 2021

Course topic

After reviewing basic identification strategies in econometrics as well as reviewing main ideas and methods of supervised machine learning, the main part of the lectures concerns causal machine learning, i.e. how to combine the prediction methods of the machine learning literature with the causal research designs to obtain reliable causal inference in empirical studies. We will discuss on how to improve the estimation of effects commonly targeted by empirical papers, like the average treatment effect on the treated, as well as discuss new possibilities to uncover finer grained causal heterogeneity. Having uncovered the latter, we discuss its use in some of the recent literature on optimal policy allocation.

Course Procedure

The course consists of 3 days of classes and a written exam (plus presentation).

Instructor

Professor Michael Lechner, University of St. Gallen, Switzerland

Exam

The written exam will consist of doing a small-scale empirical study and presenting its results. Students may form groups with up to 4 members. They will be provided with data and specific questions to answer. The presentation will be online and the slides of the presentation must be submitted for the course to be credited.

ECTS-point

Upon completing all course activities (attendance of the entire course and doing the empirical study and presenting its results), participants will be awarded 3 ECTS credits and a course certificate.

Course Fees

The course is free of charge for (i) DGPE members from AU, KU, CBS and SDU, and (ii) PhD students from Economics Departments at Nordic universities outside Denmark.

For other participants, the course fee is EUR 300.