

LECTURE SERIES 2026

# CAUSAL INFERENCE METHODS FOR REAL-WORLD DATA

29 APR 2026  
Wednesday

LECTURE

MEET & EAT \*

Light lunch provided  
Conference room – Maison des Sciences Humaines

10.00am - 12.00pm

12.00pm - 1.30pm



## Causal Machine Learning for Treatment Evaluation and Heterogeneous Treatment Effect Analysis



### ABSTRACT

This lecture provides an introduction to causal machine learning methods for estimating treatment effects in observational and experimental studies with high-dimensional covariates. The focus is on modern approaches that combine the flexibility of machine learning with causal inference in order to estimate treatment effects conditional on covariates and uncover effect heterogeneity across subgroups in a data-driven manner. The lecture discusses the challenges of treatment or impact evaluation when the set of potential confounders is large and conventional parametric models may be too restrictive. It also introduces two prominent approaches that allow researchers to control for covariates in a data-adaptive way and estimate heterogeneous treatment effects: causal (random) forests and the double machine learning framework, the latter of which can be combined with a wide range of machine learning methods. Applications from the health sciences/economics illustrate how these methods can be used to estimate both average and subgroup-specific causal effects and to detect effect heterogeneity. The lecture also demonstrates how these methods can be implemented in R, making the session useful for applied researchers interested in integrating causal machine learning into their empirical work.

### SPEAKER

**Prof Martin Huber**

Professor, Chair of Applied Econometrics and Policy Evaluation,  
University of Fribourg

### RESPONSIBLE SCIENTIST

**Michela Bia**

Luxembourg Institute of Socio-Economic Research (LISER)



\*Please note that registration for Meet and Eat is mandatory via the following link:

<https://survey.lih.lu/index.php/581492?lang=en>

### Location:

**Lecture:**  
Maison des Sciences Humaines  
Room: Conference room

11 porte des Sciences  
L-4366 Esch-sur-Alzette, Luxembourg

**JOIN**

Event number: 2788 260 4692  
Event password: ZaTDCP3Uh34

<https://mylih.webex.com/mylih/j.php?MTID=m12386946d02721a43c56136e4368716b>