Advanced Methods in Economic Analysis (PhD Guest Courses)

Guest: Simon Scheiddeger (HEC Lausanne)
(https://sites.google.com/site/simonscheidegger/home)

Dates: 23–24 September
Duration: 10 hours
Location: Seminar Room

Description

This PhD module introduces modern machine learning and deep learning methods for solving and estimating nonlinear dynamic stochastic economic models, with a focus on **Deep Equilibrium Networks (DEQNs)**. The course combines methodological foundations with practical applications to canonical macroeconomic models.

Topics

- Machine Learning and Deep Learning: basic concepts
- Deep Equilibrium Networks (DEQNs): theory and implementation
- Solving nonlinear dynamic stochastic models with deep learning
- Applications to macroeconomic models:
    - OLG models
    - DSGE models

Format

Lectures and hands-on Python sessions.

Pre-requisites

- Basic econometrics
- Familiarity with Python (https://python-programming.quantecon.org/intro.html)
- Good knowledge of calculus and probability (https://mml-book.github.io/)