

**Promotionskolleg Module 6800: Machine learning in applied economic analysis**  
**September 2 to 6, 2024 (in presence in Bonn, Nussallee 19, seminar room)**

For all material, see [github repository](#)

For assignment upload: Use <https://uni-bonn.sciebo.de/s/75Dgy1VGf7b5tj7> with PW sent to you in via email.

Assignment submission instructions:

1. Before uploading: Rename your file by appending “first name\_ last name” to the end of the file name. Do keep the rest of the file name
2. (e.g. *6800\_Day1\_FirstName\_LastName.ipynb*).
3. Please upload your assignment (i.e. your jupyter notebook) into the folder in the .ipynb format.
4. Deadline for submission of the assignments is October 15, 2024.

**Prior to the course,**

- Go through the intro slides provided on the github repository and do the “Things to do before the course”.
- Reading review paper by Storm, Baylis, Heckelei 2020  
(<https://academic.oup.com/erae/article/47/3/849/5552525> )
- Open the introductory jupyter notebook and follow instructions in the notebook
- Turn in your jupyter notebook (see instructions above) before the course starts

**Monday, Sep 2**

10:00 – 12:00 Welcome & intro, Machine Learning and causal inference, prediction versus estimation, overfitting and regularization

12:30 – 14:00 Lunch Break

14:00 – 15:00 Continuation of the morning and Q&A

15:00 – 17:00 Supervised lab session with assignment

**Tuesday, Sep 3**

9:00 – 12:00 Trees, forests and ML model interpretation

12:00 – 13:30 Lunch Break

13:30 – 14:30 Continuation of the morning and Q&A

14:30 – 17:00 Supervised lab session with assignment

**Wednesday, Sep 4**

9:00 – 12:00 Neural Networks

12:00 – 13:30 Lunch Break

13:30 – 14:30 Continuation of the morning and Q&A

14:30 – 17:00 Supervised lab session with assignment

**Thursday, Sep 5**

9:00 – 12:00 ML and causal inference (Part 1)

12:00 – 13:30 Lunch Break

13:30 – 14:30 Continuation of the morning and Q&A

14:30 – 17:00 Supervised lab session with assignment

**Friday, Sep 6**

9:00 – 11:30 ML and causal inference (continued) and Q&A

11:00 – 13:30 Q&A session, brief own (verbal) research pitches related to ML with the possibility to discuss approaches and questions

13:30 – 14:00 Feedback and farewell