

Introduction to Machine Learning

Session 1a: Course Overview

Reto Wüest

Department of Political Science and International Relations
University of Geneva

- ① Session 1
- ② Session 2
- ③ Session 3

No.	Topic
1a	Introductions and course overview
1b	General introduction to machine learning (prediction and inference, supervised and unsupervised learning)
1c	Assessing model accuracy (overfitting, bias-variance trade-off, cross-validation)
	Break
1d	Shrinkage methods I: Ridge regression
1e	Shrinkage methods II: The Lasso
1f	Application of Ridge regression and the Lasso

No.	Topic
2a	Introduction to classification and regression trees
2b	Advantages and disadvantages of trees
2c	Bagging, random forests
	Break
2d	Boosting
2e	Application I: Random forests
2f	Application II: Boosting

No.	Topic
3a	Introduction to unsupervised learning
3b	Principal components analysis (PCA)
3c	<i>K</i> -means clustering
	Break
3d	Hierarchical clustering
3e	Application I: PCA
3f	Application II: Clustering methods