

# RECSM Summer School: Machine Learning for Social Sciences

Session 1.1: Course Overview

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# Outline

① Session 1

② Session 2

③ Session 3

④ General Information

<b>No.</b>	<b>Topic</b>
1.1	Introductions and course overview
1.2	General introduction to machine learning (prediction and inference, supervised and unsupervised learning)
1.3	Assessing model accuracy (overfitting, bias-variance trade-off, cross-validation)
	Break
1.4	Shrinkage methods I: ridge regression
1.5	Shrinkage methods II: the lasso
1.6	Application of ridge regression and the lasso

<b>No.</b>	<b>Topic</b>
2.1	Introduction to classification and regression trees
2.2	Advantages and disadvantages of trees
2.3	Bagging, random forests
	Break
2.4	Boosting
2.5	Application I: classification and regression trees
2.6	Application II: bagging, random forests, boosting

<b>No.</b>	<b>Topic</b>
3.1	Introduction to unsupervised learning
3.2	Principal components analysis (PCA)
3.3	<i>K</i> -means clustering
	Break
3.4	Hierarchical clustering
3.5	Application I: PCA
3.6	Application II: clustering methods

- All course materials are available at:  
<http://retowuest.net/recsm-2018/>