

Statistical Learning Methods [223490-0286], spring 2019/20

Lecturers

- lecturer: Bogumił Kamiński
- laboratories: Groups 100 and 101 – Michał Kot, Group 102 – Kinga Siuta, Group 103 - Agata Skorupka, Groups 104 and 105 – Łukasz Kraiński

Schedule:

- lectures: Tuesdays, 8:00-10:35, Aula IV
- laboratories: room A-113 (day and hour according to group division)

Lectures

Date	Subject
25-02-20	Introduction to data science; McKinsey case study
03-03-20	Introduction to data science
10-03-20	Working with Git and Github
17-03-20	Introduction to Julia programming for data science
24-03-20	Introduction to predictive modeling
31-03-20	Methods of evaluation of predictive model quality
07-04-20	Introduction to threading and distributed computing K-nearest neighbors algorithm
21-04-20	Methods of predictive model selection
28-04-20	Regularization for predictive modeling
05-05-20	Introduction to approximation and local predictive models
12-05-20	Introduction to deep learning
19-05-20	Causality modeling: introduction
26-05-20	Causality modeling: algorithms
02-06-20	Transforming and reshaping data frames: fundamental operations
09-06-20	Data science in production environments

Laboratories

#	Subject
1	Refresher on R and Python programming
2	Methods of evaluation of classifiers
3	Nonparametric regression models: smoothing spline, LOESS, GAM
4	Classical machine learning models: CART, random forest
5	Deep learning
6	Modeling competition
7	Computer exam

Literature

- Stephen Boyd and Lieven Vandenberghe, Introduction to Applied Linear Algebra (<http://vmls-book.stanford.edu/>)
- Gareth J., Witten D., Hastie T., Tibshirani R. (2013), An Introduction to Statistical Learning with Applications in R (<http://www-bcf.usc.edu/~gareth/ISL/>)
- Hastie T., Tibshirani R., Friedman J. (2013), The Elements of Statistical Learning (<http://www-stat.stanford.edu/~tibs/ElemStatLearn/>)
- Optional: Kamiński B., Zawisza M. (2012), Receptury w R. Podręcznik dla ekonomisty, Oficyna Wydawnicza SGH (<http://bogumilkaminski.pl/projekty/>)
- Optional: B. Kamiński, P. Szufel: Julia 1.0 Programming Cookbook, Packt Publishing, 2018 (<https://www.packtpub.com/application-development/julia-10-programming-cookbook>)

Course evaluation criteria

- Modeling problem report (50 points); sent to your teaching assistant before last laboratory, subject of modelling should be agreed with teaching assistant
- Laboratory examination (50 points); during last examination performed on-line by teaching assistants
- Possible extra points: homeworks, competition

Grading rules:

Sum of points		Final grade
Od	Do	
0	49	2.0
50	59	3.0
60	69	3.5
70	79	4.0
80	89	4.5
90	100	5.0