

Statistical Learning Theory [223490-0286], spring 2018/19

Lecturers

- lectures: Bogumił Kamiński, Michał Kot, Przemysław Przybyszewski
- laboratories: Artur Płuska, Michał Kot, Beata Koń, Marek Antosiewicz

Schedule:

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

Lectures

Date	Subject
26-02-19	Introduction to data science: applications, development process, technological stack, additional case study team formation (McKinsey)
05-03-19	Team case study in cooperation with PWC: credit scoring
12-03-19	Introduction to the Julia language: vector spaces and k-means clustering
19-03-19	Introduction to the Julia language: matrix and string processing
26-03-19	Deep learning models (part 1)
02-04-19	Deep learning models (part 2)
09-04-19	Advanced methods of building stable prediction models PWC: additional data and Q&A
16-04-19	Methods of forecasting model selection. Nonparametric forecasting models
30-04-19	Analysis of graph data
07-05-19	Introduction to quantum computing
14-05-19	Causality modeling: introduction
21-05-19	Causality modeling: algorithms
28-05-19	Storytelling with data
04-06-19	Data science in production environments + written examination PWC: case study results

Laboratories

#	Subject
1	Refresher on R programming
2	Methods of evaluation of classifiers and discussion of PWC case study
3	Nonparametric regression models: smoothing spline, LOESS, GAM
4	Classical machine learning models: CART, random forest
5	Deep learning
6	Case study PWC: student presentations
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

- Written examination (50 points); during last lecture; you can bring your own printed materials
- Laboratory examination (50 points); during last examination; you can bring your own printed materials
- Possible extra points: homeworks, case studies

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