Taras Shevchenko National University of Kyiv

COURSE GUIDE

EC2.04
MACHINE LEARNING FOR SOCIOLOGISTS

Faculty of Sociology

COURSE INFO	
Title	Machine Learning for Sociologists
Code	EC2.04
Field of study	054 Sociology
Degree level	Master
Study program	Sociology (language of instruction - English)
Type	elective
Semester	4
ECTS credits	5.00
Language of instruction	English
Final control	exam
Instructor	Dr. Mykola Sydorov

SUMMARY

The course focuses on the concept of machine learning, tasks and approaches to its application in R. The course has a marked practical orientation.

PREVIOUS KNOWLEDGE

1. Know the methods of collection of sociological data and basic methods of analysis.
2. Basic skills of social data handling
3. Basic skills of work with R.

COMPETENCES	
SC11	Ability to apply state-of-the-art methods of collection and analysis of sociological data in a justifiable way to solve practical issues
SC12	Ability to apply contemporary methods of data processing in sociological research and use software packages for data processing and visualization of findings

COURSE LEARNING OUTCOMES	
1.1	Know basic approaches to the construction of regression equations
1.2	Know basic algorithms of machine learning
2.1	Ability to construct regression models
2.2	Ability to apply machine learning algorithms
2.3	Ability to use R for model's training and learning

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EVALUATION		
6 points	Completion of online course “Introduction to R” by DataCamp	
20 points	Home assignments	
34 points	Two midterm tests	
40 points	Final exam Admission to exam threshold: 36 points	
Grade explication	90-100	Excellent
	75-89	Good
	60-74	Satisfactory
	0-59	Fail

COURSE STRUCTURE

CHAPTERS	WORKLOAD (in hours)		
	lectures	seminars	self-study
1. Programming in RStudio environment	4	4	20
2. Forecasting with regression equations	4	6	36
3. Algorithms of machine learning	6	10	60

READINGS

Required

1. Sebastian Palmas, Kevin Oluoch (2019) Introduction to Machine Learning in R.- landscapeportal.org/uploaded/blogs/ICRAFuseR/seminar_3_Introductionto MachineLearninginR/ICRAF_Intro_ML.pdf P24
2. Package ‘caret’ (2021) https://cran.r-project.org/web/packages/caret/caret.pdf P224
3. Michael Clark (2013) An introduction to machine learning http://web.ipac.caltech.edu/staff/fmasci/home/astro_refs/ML_inR.pdf P43.

Additional

1. Brett Lantz (2013) Machine Learning with R.- Packt Publishing, 396P https://edu.kpfu.ru/pluginfile.php/278552/mod_resource/content/1/MachineLearningR__Brett_Lantz.pdf

Other sources

1. The European Social Survey (the ESS) http://europeansocialsurvey.org/
2. Practical guide to implement machine learning with CARET package in R (with practice problem) https://www.analyticsvidhya.com/blog/2016/12/practical-guide-to-implement-machine-learning-with-caret-package-in-r-with-practice-problem/

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