FUNDAMENTALS OF MACHINE LEARNING

ANNOTATION
TO THE CURRICULUM OF HIGHER EDUCATION

Specialty 1-53 01 02 Automated information processing systems

	Form of higher education		
	Full-time (daytime)	Part-time	Part-time reduced
Course	3	3	2
Semester	5	6	4
Lectures, hours	16	4	4
Laboratory classes, hours	34	6	6
Exam, semester	5	6	4
Classroom control work		6	4
Class hours for the academic discipline	50	12	12
Independent work, hours	58	96	96
Total hours per academic discipline / credit units	108/3	108/3	108/3

1 Summary of the academic discipline
The main stages of solving the problem of data analysis. The main types of tasks are: regression task, classification task, clustering task, forecasting task, ranking task. The main problems of machine learning. Formulation and solution of the regression analysis problem. Formulation of the classification problem with training. Statement of the clustering problem, types of cluster structures. Decision tree. Random forest training. Representation of text data in the form of a "bag of words".

2 Objectives of the discipline
As a result of mastering the discipline, the student should
know:
− basic concepts of data analysis;
− fundamentals of data processing and basic machine learning algorithms;
be able to:
− work with data in computing systems based on machine learning methods;
own:
− mathematical and algorithmic foundations of designing systems that make decisions based on the analysis of previously unknown data.

3 Formed competencies
Mastering this discipline should ensure the formation of the following competencies: BPC-5 to apply modern methodologies, software tools for building and analyzing models of processes, data, objects; UC-12 to have the skills of creative analytical thinking.

4 Requirements and forms of current and interim certification
The form of the current certification: exam, intermediate – laboratory and control work.