



Syllabus of the discipline

«Methods and algorithms of data science»

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Expected learning outcomes

Knowledge of:

- artificial intelligence and machine learning tools;
- natural language processing and neural networks;
- statistical models, data analytics and business metrics
- big data and business intelligence.

Skills:

- ability to work with unstructured data;
- exploratory data analysis;
- ability to measure and analyze data sets using visual patterns;
- application of various forms of tools used in programming languages, such as Python Numpy and Pandas.

The scope of the discipline: 4 ECTS credits (30 hours of classes, 60 hours of self-study, exam).

The purpose of the discipline is to give students a systematic knowledge of tools, algorithms and machine learning techniques that are used to find out the hidden insights or patterns from raw data which can be of major use in the making of business decisions.

Originality of the discipline: original course.

The content of the discipline

Topic 1

Python for data analysis.

Topic 2

Supervised machine learning.

Topic 3

Neural networks.

Topic 4

Statistical foundations for data science.

Topic 5

Inferential statistics.

Topic 6

Exploratory data analysis and data visualization.

Topic 7

Cloud computing.

Prerequisites

The discipline requires basic knowledge of SQL database / coding, Python coding, statistics.

Semester control: exam**Evaluation:**

Assignments: 60 points

Exam: 40 points

Types of work:

Practical assignments – 50 points

Individual assignment – 10 points

Requirements

Multimedia equipment (projector, laptop / computer).

Internet access, Wi-Fi access point.

Software: Python 3.9, Google Meet.

Moodle e-learning system 3.9.

Deadline policy

Works submitted in violation of deadlines without good reason are evaluated at a lower grade.

Academic Integrity Policy

Independent work is required for practical and individual assignments. In case of plagiarism detection assignments are not credited.

Criteria for assignment evaluation

Completeness and quality of application performance.

Quality of the student's review (its content and conclusions).

Ability to make the requested changes in code.

Completeness and logic of a student's answers to theoretical questions and questions related to the submitted application.