Study programmes: Master studies - Informatics

Course name: R363 - Machine Learning

Lecturers: Predrag Janičić and other lecturers of the Department of Computer Science

Status: Optional

ECTS: 8

Attendance prerequisites: No prerequisites

Course aims: Acquiring fundamental knowledge about machine learning and its applications.

Course outcome: After completion of the course, students understand key theoretical concpetsand algorithms of machine learning. They are able to select adequate models and algorithms for solving practical problems.

Course content:

Fundamentals of decision theory
Fundamental concepts and results of statistical learning theory
Classification and regression:
- Linear models
- Support vector machines
- Artificial neural networks

Clustering
Dimensionality reduction
Graphical models
Reinforcement learning

Literature:

1. Chirstopher Bishop: Pattern Recognition and Machine Learning, Springer, 2006.
2. Richard Sutton, Andrew Barto: Reinforcement Learning - An Introduction, MIT Press, 1998.

(a lecturer can recommend different literature if deemed appropriate)

Number of hours: 7	**Lectures: 2**	**Tutorials: 3**	**Laboratory: -**	**Research: 2**

Teaching and learning methods: Frontal/Lectures/Exercises

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	20	Written exam	-
Exercises / Tutorials	-	Oral exam	-
Colloquia	-	Written-oral exam	50
Essay / Project	30		