Course: Data Science 5 — credits: 5

Course code	BFVM25DATASCNC5
Name	Data Science 5
Study year	2025-2026
ECTS credits	5
Language	English
Coordinator	-
Modes of delivery	Assignment Lecture Tutorial
Assessments	Data Science 5 - Computer, organised by School

Learning outcomes

- You utilize an argumentative approach to select and apply appropriate supervised machine learning techniques and algorithms for a given problem in life science.
- You implement predictive machine learning algorithms for regression and classification in Python and evaluate their validity and effectiveness.
- You execute the general steps of the machine learning lifecycle, including data engineering, model selection, hyperparameter tuning, and model deployment, and apply them effectively to life science problems.
- You demonstrate knowledge and understanding of the challenges and limitations of supervised machine learning in the context of the life science problem at hand.

Content

This course introduces the fundamental concepts and techniques of classical supervised Machine Learning and their applications in solving problems in different areas. The course begins with a repetition of linear regression, extending it to more general regression models. Subsequently, various classification methods are introduced, some of which are implemented extensively (e.g. Logistic regression, Naive Bayes, Decision trees) and some of which are covered more succinctly (e.g. k-Nearest Neighbor, Discriminant Analysis, Support Vector Machines). Finally some general topics and best practices are covered (e.g. ensemble learning, model evaluation metrics, feature selection, cross-validation, learning curve, and more).

Included in programme(s)

Master Data Sciences for the Life Science

School(s)

Institute for Life Science & Technology

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