Course: Machine Learning with Class

credits: 5

Course code BFVH24MLEARNING
Name Machine Learning with Class
Study year 2025-2026
ECTS credits 5
Language Dutch, with parts in English
Coordinator L. Oldhoff

Modes of delivery Assignment
Tutorial

Assessments Casus - Other assessment
Theorie - Written, organised by School

Learning outcomes

- You are able to differentiate between different types of machine learning algorithms and are able to select a candidate algorithm given a dataset and research question
- You perform a literature study on a given Machine Learning algorithm and can explain the model and its relevant hyperparameters to a group of peers
- You explore, examine and prepare a dataset from the field of life sciences for use in Machine Learning
- You implement and optimize various classification-algorithms in R and you evaluate and compare their performances
- You document the process of selecting and processing data and developing a model and visualize the results in a notebook in a reproducable manner
- You develop a notebook that can apply a developed machine learning model to classify new data
- You critically discuss your methods and result in their biological context

Content

In this module you will be introduced to the field of Machine Learning. Specifically, you will use ML classification on a data set of your choice. You will learn how to formulate a research question, and explore and prepare your data accordingly, learning what algorithm to put to the task, and what can go awry if an unsuitable algorithm is chosen. You will train your model to find patterns in the data, allowing it to make predictions when presented with new data. You will also learn how to judge these predictions accordingly, judging different models on their accuracy. You will also learn how to document your process and share it with colleagues. The module will be concluded with a Machine Learning competition, where you will work in small teams on the same dataset to see which team can build the most accurate model.

Included in programme(s)

Bio-Informatics

School(s)

Institute for Life Science & Technology