Course: Machine Learning with Class(es) credits: 5

Course code	BFVH23MACHINE
Name	Machine Learning with Class(es)
Study year	2023-2024
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	D.R.M. Langers

Modes of delivery	Assignment Tutorial
Assessments	Machine Learning with Class(es) - Other assessment

Learning outcomes

This module has the following learning outcomes

You distinguish different types of Machine Learning and select suitable candidate algorithms on this basis, given a concrete dataset and research question

You investigate the operation of a Machine Learning algorithm using sources so that you can articulate the meaning of relevant hyperparameters

You prepare and explore an existing dataset from the life sciences for the purpose of Machine Learning

You implement and optimise various classification algorithms in Python and reliably evaluate and compare their performance against applicable outcome measures

You document successive steps in data processing and model development and visualise corresponding outcomes reproducibly in a notebook

You develop a simple application that applies a developed Machine Learning model to assign predictions to new data

You critically discuss methods and results both orally and in writing taking into account their biological context

Content

In this module, you will be introduced to Machine Learning techniques and, in particular, perform classification on a self-selected biological dataset. You formulate your own research question and learn how to explore and prepare data. You choose an appropriate type of model and discover what can go wrong if you apply incorrect models. You train your model to make predictions about new cases by detecting patterns in the data, and you reliably evaluate and compare the performance of such models. You will learn to reproducibly document and explain your results to colleagues. The module concludes with a Machine Learning competition where you work in teams to construct the most accurate predictive model possible.

Included in programme(s)

Bio-Informatics

School(s)

Institute for Life Science & Technology

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