Course: Data Science 6 — credits: 5

Course code	BFVM25DATASCNC6
Name	Data Science 6
Study year	2025-2026
ECTS credits	5
Language	English
Coordinator	F. Feenstra
Modes of delivery	Assignment Lecture Tutorial
Assessments	Deep Learning - Computer, organised by School Unsupervised Learning - Assignment

Learning outcomes

- You utilize an argumentative approach to select and apply appropriate unsupervised machine learning techniques and algorithms for a given problem in life science, while also being able to evaluate their effectiveness.
- You demonstrate knowledge and understanding of the challenges and limitations of unsupervised machine learning and deep learning in the context of the life science problem at hand.
- You explain concepts related to neural networks in appropriate terminology, reason about their properties, and diagnose problems with chosen network designs.
- You choose, design and implement a fully-connected feed-forward neural network, or a convolutional or recurrent neural network to perform classification or regression of tabular, image, or time series data.

Content

This course is designed to provide both foundational and in-depth knowledge of unsupervised and deep learning machine learning techniques, focusing on their application in life sciences. You will explore various data-driven approaches, enhance your analytical skills, and develop a comprehensive portfolio that includes practical assignments. The course emphasizes critical thinking and problem-solving, enabling you to interpret results thoughtfully and consider your biological implications. The course is structured to build expertise progressively, from introductory concepts to advanced topics like deep learning and neural networks. You will gain practical experience implementing these techniques in Python.

Included in programme(s)

Master Data Sciences for the Life Science

School(s)

Institute for Life Science & Technology

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