

# Project Guidelines

Machine Learning for Behavioral Data

February 17, 2026

# Overview

- Teams of 3 people
- We will provide the data sets (from EdTech Start-Ups)
- We will provide example research questions
- You will suggest an additional analysis/extension to the selected research question
- We will give feedback during the semester (see milestones)
- You will do a **poster presentation** in the last week of the semester on May 26 (13:15 – 16:00), **attendance is mandatory**
- Final project (Code + Report) delivered by **June 4, 2026 23:59 CET**

# Scope

Work on 2-3 research questions:

- At least 1 question needs to be on predictive modeling or unsupervised learning
- At least 1 question needs to be on ethical machine learning (fairness or explainability)

# Research Questions

## Research question 1a): Predictive Modeling

Focus on developing and evaluating predictive models (Bayesian Knowledge Tracing (BKT), Deep Knowledge Tracing (DKT), Neural Networks,...)

**OR**

## Research Question 1b): Unsupervised Learning

Focus on discovering patterns or structures in data (Clustering and Pattern Discovery)

**AND**

## Research Question 2: Ethical Machine Learning

Focus on fairness or explainability (Bias detection and mitigation techniques, Fairness metrics, Explainable AI methods)

Week	Lecture & Lab (13:15-16:00)	Project Hours (16:15-17:00)	Milestones
1	Introduction + Data Exploration	Project Presentation + Environment Setup	-
2	Regression	Introduction to tasks for M2	M1: Preferences on team members and data sets (Feb 25, 23:59)
3	Classification + Model Evaluation	Office hours – Individual Drop-In	
4	Time Series Prediction	Office hours – Individual Drop-In	
5	Time Series Prediction	Introduction to tasks for M3/M4	M2: <i>Individual exploration of selected data set (March 19, 23:59)</i>
6	Time Series Prediction	Office hours – Individual Drop-In	M3: <i>selection of research question and approach (March 26, 23:59)</i>
7	Unsupervised Learning	Individual discussion with teams	
8	Spring Break		
9	Unsupervised Learning	Office hours – Individual Drop-In	
10	Ethical Machine Learning	Team Coaching	
11	Ethical Machine Learning	Office hours – Individual Drop-In	M4: <i>submission of results for first research question (April 30, 23:59)</i> M5: <i>ideas for extension and approach (April 30, 23:59)</i>
12	Reserve	Individual discussion with teams	
13	No lecture	Office hours – Individual Drop-In	
14	No lecture	Office hours – Individual Drop-In	
15	Poster Session		M6: <i>Poster Session, May 26 (13.15-17.00, EPFL Campus)</i>
16	Semester End	Semester End	M7: <i>Hand in report and code base (June 4, 23:59)</i>

# Mandatory Attendance

- Individual team discussion (feedback on M2/M3)
  - March 31, 2026: 10-15 minutes slot between 15:15-17:00
- Individual team discussion (M4 progress)
  - April 21, 2026: 10-15 minutes slot between 15:15-17:00
- Individual team discussion (feedback on M4/M5)
  - May 5, 2026: 10-15 minutes slot between 15:15-17:00
- Poster presentations
  - May 26, 2026: 10-minutes slot between 13:15-15:00

# Grading

- M2 (individual, notebook): 15%
- M4 (code, short report): 25%
- M6 (poster, presentation): 20%, attendance mandatory
- M7 (code, report): 40%