

## COURSE DETAIL

### MATHEMATICAL FOUNDATIONS FOR MACHINE LEARNING

**Country**

Germany

**Host Institution**

Technical University Berlin

**Program(s)**

Technical University Berlin

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Computer Science

**UCEAP Course Number**

132

**UCEAP Course Suffix**

A

**UCEAP Official Title**

MATHEMATICAL FOUNDATIONS FOR MACHINE LEARNING

**UCEAP Transcript Title**

MATH MACHINE LEARNNG

**UCEAP Quarter Units**

4.50

**UCEAP Semester Units**

3.00

### Course Description

This course explores mathematical concepts that are useful and frequently used in machine learning. Students examine linear algebra (vector spaces, scalar products, orthogonal vectors, matrices as linear mappings, determinants, eigenvalue and eigenvectors), analysis (differentiation), and probability theory (multidimensional probability distributions, calculations with expected values and variances). The class also discusses some contemporary applications of mathematics in machine learning.

### Language(s) of Instruction

English

### Host Institution Course Number

45965

### Host Institution Course Title

MATHEMATICAL FOUNDATIONS FOR MACHINE LEARNING

### Host Institution Course Details

<https://web.ml.tu-berlin.de/teaching/courses/>

### Host Institution Campus

### Host Institution Faculty

### Host Institution Degree

### Host Institution Department

Informatik

### Course Last Reviewed

2025-2026

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