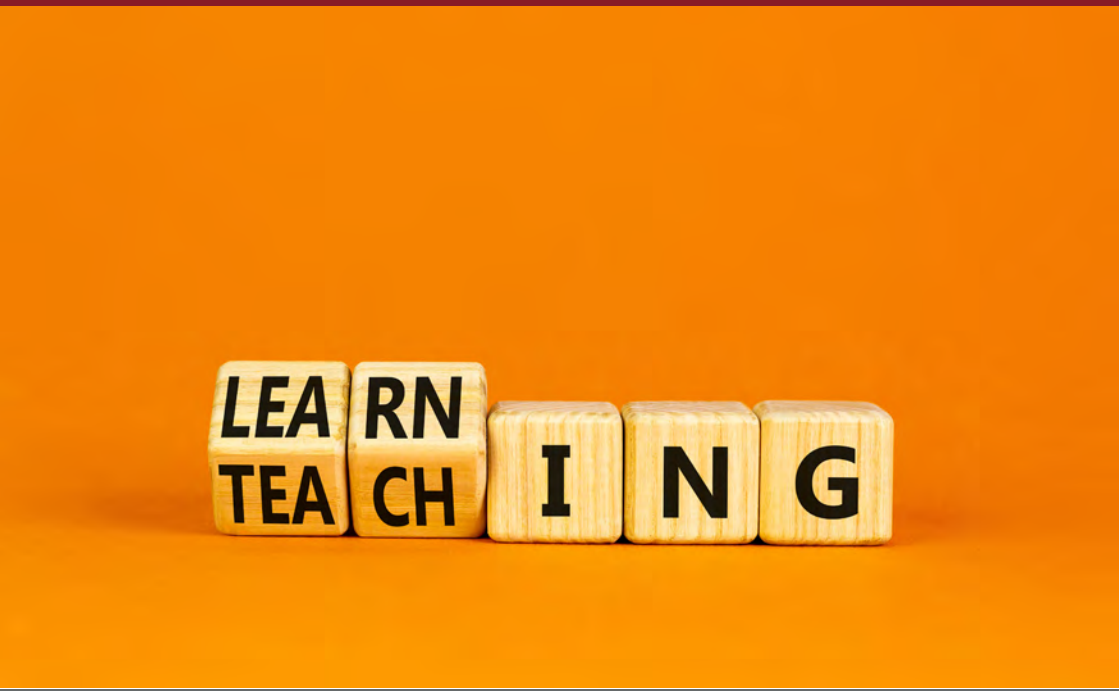
PH Bern
Pädagogische Hochschule

UNIVERSITÄT BERN

CAS

AI for Teachers

Continuing Education in Extended Intelligence
2026/2027



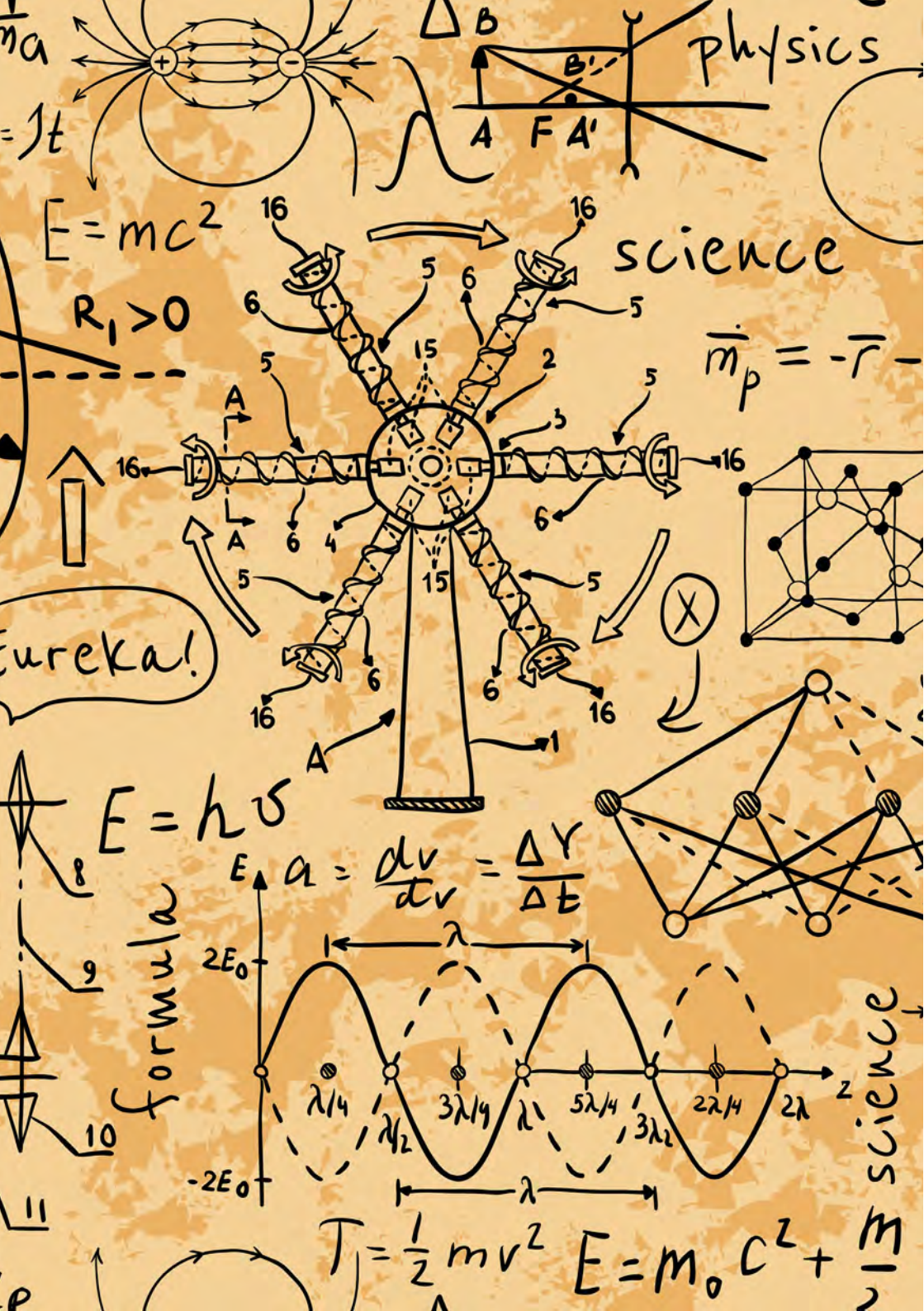

physics
science
$E = mc^2$
$R_1 > 0$
$\vec{m}_p = -\vec{r}$
Eureka!
$E = h\upsilon$
$a = \frac{dv}{dv} = \frac{\Delta v}{\Delta t}$
formula
$T = \frac{1}{2} m v^2$
$E = m_0 c^2 + \frac{m}{2}$
science

Table of Contents

CAS
AI for Teachers

Introduction

In recent years, schools and teachers have been confronted with AI tools that are fundamentally challenging established pedagogical and didactic settings. Large Language Models (LLMs) have reached a level that enables learners and teachers to generate, correct and summarize texts, and even create planning documents that are close to or sometimes even above the average standard. The clever use of common AI tools increases the efficiency, so that both teachers and students now feel compelled to use these tools for certain tasks. The only question is: does this accelerated work modality serve the main purpose of school - education - or does the use of AI in schools hinder educational processes?

The CAS AI4T course has two objectives. The first is to gain an in-depth insight into the technology of LLMs. In this part, participants create simple language models "from scratch" with the aim of understanding the mechanisms of the systems. The second part of the course focuses on the use of existing "state of the art" LLMs in a school context with the aim of facilitating educational processes.

"Our intelligence is what makes us human, and AI is an extension of this quality."

YANN LECUN
French-American machine learning specialist
Chief AI Scientist at Facebook

Target groups

The CAS AI4T is aimed at teachers at baccalaureate schools and lower secondary level, lecturers in teacher training and those responsible for education, as well as anyone interested in the topic of digitalization in education.

SUITABLE AND INTENDED FOR TEACHERS AT SECONDARY LEVEL II (Baccalaureate level):

The course is primarily aimed at teachers at upper secondary level (Baccalaureate level) and in particular those teaching STEM subjects. In terms of content, it is dedicated to the technical basics of AI on the one hand and the use of AI in teaching on the other. Through practical exercises, participants learn how to apply current machine learning models using the Python programming language.

If you have any questions about whether this program is right for you, please do not hesitate to contact us.

Objectives

The CAS AI4T is divided into six modules and runs over 20 course days from August to January. The last block concludes with an individual project. On completion of the course, graduates will

be familiar with the history and present of technological aids in pedagogy and didactics, and be able to critically assess their influence on learners, teachers and society,

have a basic understanding of common self-adaptive algorithms,

be able to carry out basic language processing and use generative algorithms,

be able to use AI to plan, diagnose and evaluate learning processes in a responsible and targeted manner,

be able to critically develop, implement and communicate about an AI project for learning processes,

know the legal foundations and the ethical and socio-political aspects of the use of AI in learning processes.

CAS AI for Teachers
Summary

CAS AI for Teachers

Degree
Certificate of Advanced Studies in AI for Teachers University of Bern (CAS AI4T Unibe)

Scope
16 ECTS

Duration
2026-08 - 2027-07
(2 years is possible)

Start
2026-08

Admission
Degree from a university, university of teacher education or university of applied sciences

Cycle
Annual

Language
Englisch and Swiss national languages

Further information
www.unibe.ch/continuing_education_programs/cas_in_artificial_intelligence_for_teachers

Locations
The courses take place at the University of Bern and at the Bern University of Teacher Education (PHBern). The exception is Module 6, which takes place in the Mürren ski resort, two hours by train from the city of Bern. All courses are also held online. Remote participation is possible.

Teaching Methods
Our teaching methods are modern and collegial. The modules use online platforms with multimedia materials and exchange forums to support learning and communication in the learning groups.
The main programming language is Python.

Workload
A module comprises approximately 20 teaching hours plus a module assignment (expected workload pro assignment: 30 hours), with 2 ECTS credits awarded for each module completed.
The final CAS project comprises 4 ECTS points.

Modules

Module 1

History and present of technology in Teaching

The module provides an overview of the history of technological aids in school and highlights their influence on learning processes.

Module 2

Technical Foundations 1 - Maschine Learning

This module deals with machine learning algorithms, their training, fine-tuning and evaluation.

Module 3

Technical Foundations 2 - NLP and Generative Models

This module deals with natural language processing and the construction and evaluation of generative models.

Module 4

AI in Education 1 - Planning, Diagnostics and Assessment

This module critically examines the use of AI algorithms for planning, diagnosis and assessment in education.

Module 5

AI in Education 2 - Ethical, legal and socio-political Aspects

This module deals with ethical aspects, the legal framework and the social and professional implications of the use of AI in education.

Module 6

AI in Education 3 - Selected Topics

The module deals with important past and current topics related to AI in educational processes.

Final Project

CAS Thesis

The final CAS Project is seen as the application and consolidation of all gained knowledge. Teamwork and the use of own data are encouraged.

Final Project

Participants work in teams to create and present a project with or on applications of AI in learning processes (4 ECTS) based on the CAS modules. They will have the support of tutors specialized in the different areas covered during the course.

To check if registration is currently possible, visit

Cost

Regular CAS program:	CHF 9900
Employees and students of the University of Bern and of the University of Teacher Education Bern (PHBern):	CHF 6900

Inclusive of all modules, performance assessments, certificates, materials and teaching platforms, coffee breaks, full board hotel in Mürren (Module 6) and diploma apero.

Participants must bring their own laptops.

Registration

Register via **www.unibe.ch/continuing_education_programs/cas_in_artificial_intelligence_for_teachers**

Registration opens in November and a maximum of 20 applications can be accepted each year. Applications are processed in the order of arrival. The CAS can only be offered if sufficient registrations are received by May 31st.

Registered participants will receive a confirmation of acceptance by email and will be invited to one of the next Introduction events. Attendance to one Introduction is mandatory. Participants can cancel their registrations free of charge up to the registration deadline. After the deadline, the regulations apply.

Schedule
2026/2027

Module 1 **History and Present of Technology in Teaching**
2026-08-21, 2026-08-22, and 2026-08-28

Module 2 **Technical Foundations 1 - Machine Learning**
Weekly from 2026-09-04 until 2026-09-25

Module 3 **Technical Foundations 2 - NLP and Generative Models**
2026-10-05 - 2026-10-09

Module 4 **AI in Education 1 - Planning, Diagnostics and Assessment**
Weekly from 2026-10-23 until 2026-11-13

Joint Lectures **Legal and Neuroscience Aspects of AI** 2026-11-20

Module 5 **AI in Education 2 - Ethical, legal and sociopolitical Aspects**
Weekly from 2026-11-27 until 2026-12-18

Module 6 **AI in Education 3 - Selected Topics**
2027-03-01 - 2027-03-05

Further introductionary courses:

Algorithms and programming are important tools in data-driven research. Python is a good scripting language widely used to create pipelines of tasks typical for large computations and analysis on large data sets.

For people who wish to refresh their programming skills in Python or who are new to this programming language, we recommend our Introduction to Python course.

CONTACT

PD Dr. Sigve Haug
Director of Studies
sigve.haug@unibe.ch

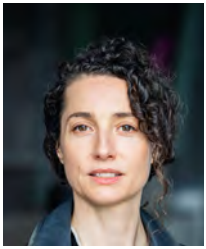
Prof. Dr. Dr. Marc Eyer
Head of institute
Institute Secondary Level II
PHBern
Marc.Eyer@phbern.ch

Lecturers

Our lecturers are recognised experts from the University of Bern, PHBern and external organisations.

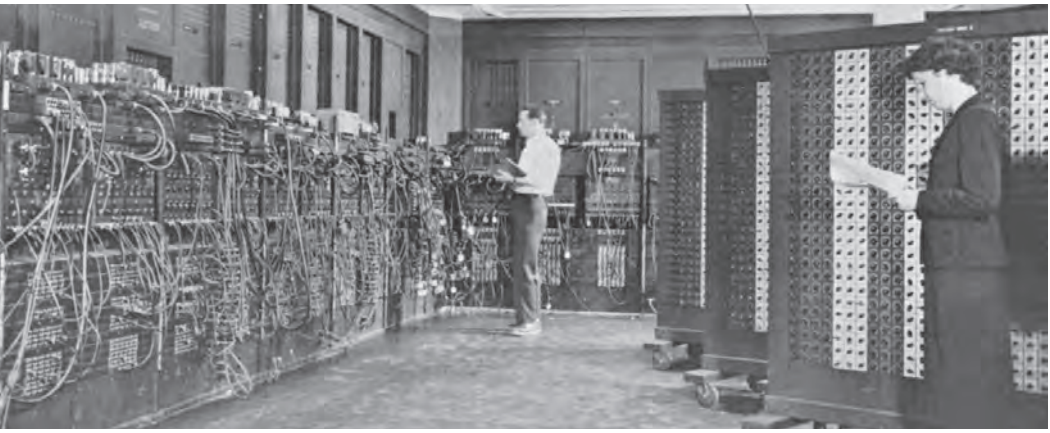
Program management

The study program is offered in collaboration with the University of Bern and PHBern. The program is managed by Prof. Dr. Dr. Marc Eyer, PD Dr. Sigve Haug (Director of Studies), Prof. Dr. Christiane Tretter, Prof. Dr. Jan Draisma, and Prof. Dr. Thomas Wihler.



Dr. Katja Vaghi
Education Manager
CAS AI4T und AICP
katja.vaghi@unibe.ch

Further study options:
Extended Intelligence



DAS Extended Intelligence

The CAS in AI of the university of Bern can be combined into a Diploma of Advanced Studies in Extended Intelligence - the DAS XI.

The scope of the DAS XI comprises 38 ECTS:

16 ECTS from CAS ADS/AML/NLP
16 ECTS from CAS ADS/AML/NLP
2 ECTS from DAS Module
4 ECTS from DAS Thesis

MAS Extended Intelligence

The CAS in AI of the University of Bern can be combined into a Master of Advanced Studies in Extended Intelligence - the MAS XI.

The scope of the MAS XI comprises 62 ECTS:

16 ECTS from CAS ADS
16 ECTS from CAS AML
16 ECTS from CAS NLP
2 ECTS from MAS Module
12 ECTS from MAS Thesis

Contact us, for other options.


C = 0 for x < 0 at t
C = c' for x > 0 at t = 0
exp(-u²)du
+ n
OH
ACID
HO
CH₂—CH₂
ETHYLENE
GLYCOL
OH
+ n H₂O
TEREPHTHALATE)
N
6.02 × 10²³
MM

"unsupported transit" in Eadweard Muybridge: *Animal Locomotion* (1887)

University of Bern
Mathematical Institute
Sidlerstrasse 5
3012 Bern
Switzerland

www.math.unibe.ch

University of Teacher Education
Bern PHBern
Fabrikstrasse 8
3012 Bern
Switzerland

www.phbern.ch

WEITER
BILDUNG.
UNIBE.CH