

**2-DAY COURSE**

# AI and Machine Learning Essentials

Fundamentals, Applications and Best Practices

## TARGET AUDIENCE

Professionals, across industries who want to gain an understanding of Artificial Intelligence (AI), Machine Learning (ML), and Generative AI.

Managers, team leaders, business analysts or consultants who want to build confidence in navigating the AI landscape, understanding its capabilities and obstacles, and engaging effectively in AI-related discussions and decisions.

- No prior technical background is required, just curiosity and a desire to learn
- Participants should bring their own laptop (for hands-on experience)

## ORGANIZATION

- EPFL (Swiss Federal Institute of Technology in Lausanne), Switzerland

## OVERVIEW

In today's rapidly evolving landscape, AI and Machine Learning (ML) are reshaping industries, creating new possibilities for professionals in every field. Even if your role is not directly in AI or data science, you can gain an understanding of how these technologies work and might be leveraged.

How can AI tools help you increase productivity, enhance decision making or streamline processes? This course provides a clear, accessible introduction to core AI concepts and tools, empowering you to evaluate opportunities, ask better questions, and contribute meaningfully to AI-driven projects.

## OBJECTIVES

- Gain an overview of the ML, AI and Generative AI landscapes
- Understand how models are built, aligned and benchmarked
- Clarify key ML concepts to inform decisions in your organization
- Explore and practice prompting Large Language Models (LLMs)
- Strengthen your ability to effectively communicate and collaborate with technical professionals in the AI community



Tues. November 25, 2025  
9 am to 5 pm  
Wed. November 26, 2025  
9 am to 5 pm



CHF 1500.–  
10% special discount for contributing  
members of EPFL Alumni & EPFL  
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EPFL, Lausanne, Switzerland



On-line registration  
Registration deadline :  
August 31, 2025  
Number of participants is limited



Certificate of attendance



## PROGRAM

### DAY 1 - Morning

#### INTRODUCTION TO ARTIFICIAL INTELLIGENCE

*Frontal lesson with conceptual exercises*

- AI Terminology and its building blocks
- Examples of real-world applications of AI
- Different types of learning (supervised, self-supervised, unsupervised, multimodal)

### DAY 1 - Afternoon

#### DECISION MAKING ALONG THE PIPELINE

*Frontal lesson and workshops*

- Data science pipeline essentials
- Exploring and analysing AI use cases

### DAY 2 - Morning

#### LARGE LANGUAGE MODELS (LLMs) AND GENERATIVE AI

*Frontal lesson and conceptual exercises*

- Generative AI: a peek behind the curtain
- Applications, limitations and guardrails of Generative AI models
- Model alignment and benchmarks for model selection

### DAY 2 - Afternoon

#### PROMPTING, INFRASTRUCTURE AND TOOLS

*Frontal lesson and workshops*

- Prompt engineering, from concepts to interactive exercises
- Compute power in the realm of AI
- Tools and framework for building Generative AI applications
- Conclusion: Insights and key takeaways

## PROGRAM DIRECTOR

- **Prof. Negar Kiyavash,**  
*Full Professor, Chair of Business Analytics, EPFL*

## INSTRUCTORS

- **Christian Lübke,**  
*Machine Learning Course Instructor, EPFL*
- **Amir Khalilzadeh,**  
*Machine Learning Course Instructor, EPFL*