

# Artificial Intelligence and Machine Learning Fundamentals (AIMLF)

ID AIMLF Price on request Duration 3 days

## Course Objectives

- Understand the importance, principles, and fields of AI
- Implement basic artificial intelligence concepts with Python
- Apply regression and classification concepts to real-world problems
- Perform predictive analysis using decision trees and random forests
- Carry out clustering using the k-means and mean shift algorithms
- Understand the fundamentals of deep learning via practical examples

## Course Content

### 1: Principles of Artificial Intelligence

- Introduction
- Fields and Applications of Artificial Intelligence
- AI Tools and Learning Models
- The Role of Python in Artificial Intelligence
- Python for Game AI
- Summary

### 2: AI with Search Techniques and Games

- Introduction
- Heuristics
- Pathfinding with the A\* Algorithm
- Game AI with the Minmax Algorithm and Alpha-Beta Pruning
- Summary

### 3: Regression

- Introduction
- Linear Regression with One Variable
- Linear Regression with Multiple Variables
- Polynomial and Support Vector Regression
- Summary

### 4: Classification

- Introduction
- The Fundamentals of Classification
- Classification with Support Vector Machines

- Summary

### 5: Using Trees for Predictive Analysis

- Introduction to Decision Trees
- Random Forest Classifier
- Summary

### 6: Clustering

- Introduction to Clustering
- The k-means Algorithm
- Mean Shift Algorithm
- Summary

### 7: Deep Learning with Neural Networks

- Introduction
- TensorFlow for Python
- Introduction to Neural Networks
- Deep Learning
- Summary

### 8: Appendix A

- Lesson 1: Principles of AI
- Lesson 2: AI with Search Techniques and Games
- Lesson 4: Classification
- Lesson 5: Using Trees for Predictive Analysis
- Lesson 6: Clustering
- Lesson 7: Deep Learning with Neural Networks

# Artificial Intelligence and Machine Learning Fundamentals (AIMLF)

---

## Training Centres worldwide



## Fast Lane Institute for Knowledge Transfer (Switzerland) AG

Husacherstrasse 3  
CH-8304 Wallisellen  
Tel. +41 44 832 50 80

[info@flane.ch](mailto:info@flane.ch), <https://www.flane.ch>