

## CAIP - Certified Artificial Intelligence Practitioner

Duration: 5 Days    Course Code: GK840033

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### Overview:

Artificial intelligence (AI) and machine learning (ML) have become essential parts of the toolset for many organizations. When used effectively, these tools provide actionable insights that drive critical decisions and enable organizations to create exciting, new, and innovative products and services. This course shows you how to apply various approaches and algorithms to solve business problems through AI and ML, all while following a methodical workflow for developing data-driven solutions.

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### Target Audience:

The skills covered in this course converge on four areas—software development, IT operations, applied math and statistics, and business analysis. Target students for this course should be looking to build upon their knowledge of the data science process so that they can apply AI systems, particularly machine learning models, to business problems.

So, the target student is likely a data science practitioner, software developer, or business analyst looking to expand their knowledge of machine learning algorithms and how they can help create intelligent decisionmaking products that bring value to the business.

A typical student in this course should have several years of experience with computing technology, including some aptitude in computer programming.

This course is also designed to assist students in preparing for the CertNexus® Certified Artificial Intelligence (AI) Practitioner (Exam AIP-210) certification.

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### Objectives:

- In this course, you will develop AI solutions for business problems.
  - You will:
    - Solve a given business problem using AI and ML.
    - Prepare data for use in machine learning.
    - Train, evaluate, and tune a machine learning model.
    - Build linear regression models.
    - Build forecasting models.
  - Build classification models using logistic regression and k -nearest neighbor.
  - Build clustering models.
  - Build classification and regression models using decision trees and random forests.
  - Build classification and regression models using support-vector machines (SVMs).
  - Build artificial neural networks for deep learning.
  - Put machine learning models into operation using automated processes.
  - Maintain machine learning pipelines and models while they are in production
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### Prerequisites:

To ensure your success in this course, you should be familiar with the concepts that are foundational to data science, including:

- The overall data science and machine learning process from end to end: formulating the problem; collecting and preparing data; analyzing data; engineering and preprocessing data; training, tuning, and evaluating a model; and finalizing a model.
  - Statistical concepts such as sampling, hypothesis testing, probability distribution, randomness, etc.
  - Summary statistics such as mean, median, mode, interquartile range (IQR), standard deviation, skewness, etc.
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■ Graphs, plots, charts, and other methods of visual data analysis. You can obtain this level of skills and knowledge by taking the CertNexus course Certified Data Science Practitioner (CDSP) (Exam DSP-110).

You must also be comfortable writing code in the Python programming language, including the use of fundamental Python data science libraries like NumPy and pandas. The Logical Operations course Using Data Science Tools in Python® teaches these skills.

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## Content:

Lesson 1: Solving Business Problems Using AI and ML	Lesson 5: Building Forecasting Models	Topic A: Build SVM Models for Classification
Topic A: Identify AI and ML Solutions for Business Problems	Topic A: Build Univariate Time Series Models	Topic B: Build SVM Models for Regression
Topic B: Formulate a Machine Learning Problem	Topic B: Build Multivariate Time Series Models	Lesson 10: Building Artificial Neural Networks
Topic C: Select Approaches to Machine Learning	Lesson 6: Building Classification Models Using Logistic Regression and k-Nearest Neighbor	Topic A: Build Multi-Layer Perceptrons (MLP)
Lesson 2: Preparing Data	Topic A: Train Binary Classification Models Using Logistic Regression	Topic B: Build Convolutional Neural Networks (CNN)
Topic A: Collect Data	Topic B: Train Binary Classification Models Using k-Nearest Neighbor	Topic C: Build Recurrent Neural Networks (RNN)
Topic B: Transform Data	Topic C: Train Multi-Class Classification Models	Lesson 11: Operationalizing Machine Learning Models
Topic C: Engineer Features	Topic D: Evaluate Classification Models	Topic A: Deploy Machine Learning Models
Topic D: Work with Unstructured Data	Topic E: Tune Classification Models	Topic B: Automate the Machine Learning Process with MLOps
Lesson 3: Training, Evaluating, and Tuning a Machine Learning Model	Lesson 7: Building Clustering Models	Topic C: Integrate Models into Machine Learning Systems
Topic A: Train a Machine Learning Model	Topic A: Build k-Means Clustering Models	Lesson 12: Maintaining Machine Learning Operations
Topic B: Evaluate and Tune a Machine Learning Model	Topic B: Build Hierarchical Clustering Models	Topic A: Secure Machine Learning Pipelines
Lesson 4: Building Linear Regression Models	Lesson 8: Building Decision Trees and Random Forests	Topic B: Maintain Models in Production
Topic A: Build Regression Models Using Linear Algebra	Topic A: Build Decision Tree Models	Appendix A: Mapping Course Content to CertNexus® Certified Artificial Intelligence (AI) Practitioner (Exam AIP-210)
Topic B: Build Regularized Linear Regression Models	Topic B: Build Random Forest Models	Appendix B: Datasets Used in This Course
Topic C: Build Iterative Linear Regression Models	Lesson 9: Building Support-Vector Machines	

## Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

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