Document Generated: 11/15/2026

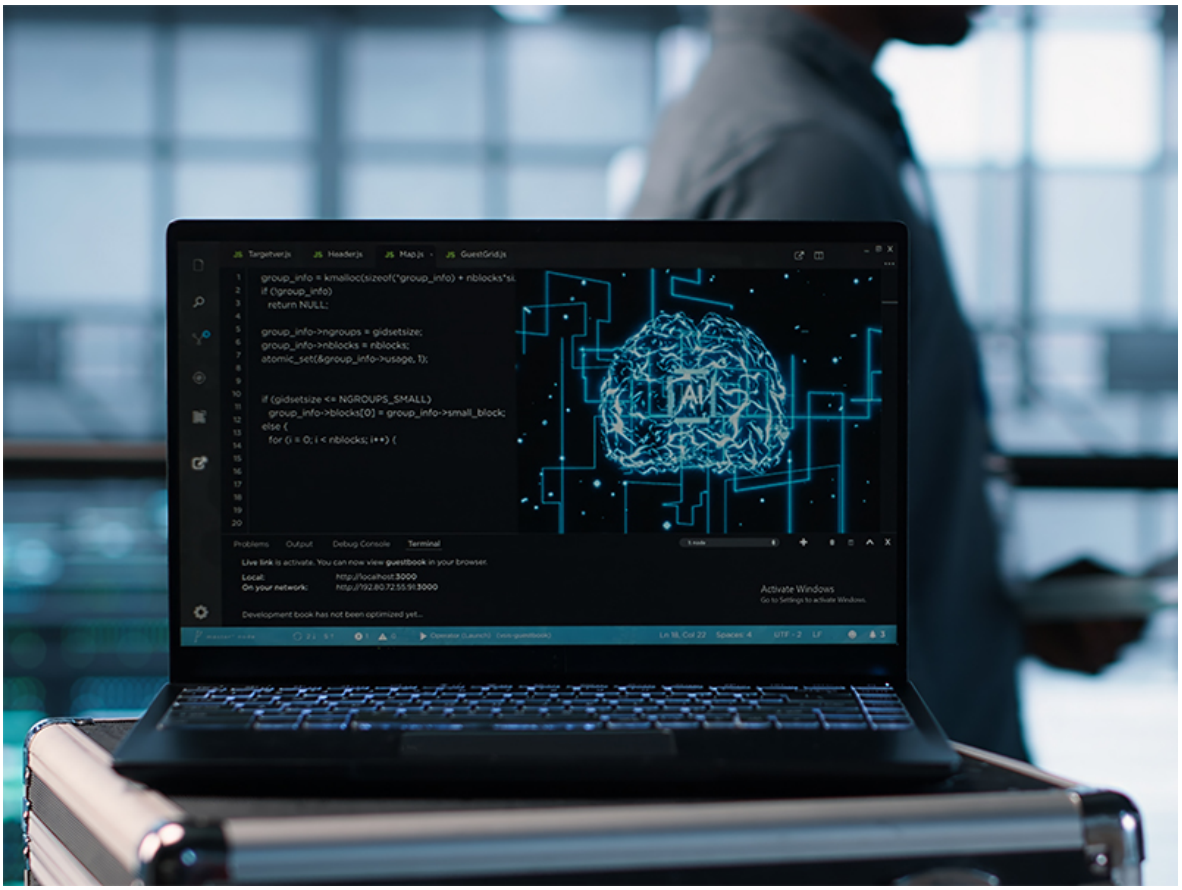
Learning Style: Virtual Classroom

Technology:

Difficulty: Advanced

Course Duration: 5 Days

Certified Artificial Intelligence Practitioner (CAIP)



About This Course:

Artificial intelligence (AI) and machine learning (ML) have become an essential part 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, follow a methodical workflow to develop sound solutions, use open source,

off-the-shelf tools to develop, test, and deploy those solutions, and ensure that they protect the privacy of users. This course includes hands on activities for each topic area.

Course Objectives:

- Specify a general approach to solve a given business problem that uses applied AI and ML.
- Collect and refine a dataset to prepare it for training and testing.
- Train and tune a machine learning model.
- Finalize a machine learning model and present the results to the appropriate audience.
- Build linear regression models.
- Build classification models.
- Build clustering models.
- Build decision trees and random forests.
- Build support-vector machines (SVMs).
- Build artificial neural networks (ANNs).
- Promote data privacy and ethical practices within AI and ML projects.

Audience:

- The skills covered in this course converge on three areas—software development, applied math and statistics, and business analysis. Target students for this course may be strong in one or two or these of these areas and looking to round out their skills in the other areas so they can apply artificial intelligence (AI) systems, particularly machine learning models, to business problems.

Prerequisites:

- 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-110) certification.

Course Outline:

1 - SOLVING BUSINESS PROBLEMS USING AI AND ML

- Topic A: Identify AI and ML Solutions for Business Problems
- Topic B: Follow a Machine Learning Workflow
- Topic C: Formulate a Machine Learning Problem
- Topic D: Select Appropriate Tools

2 - COLLECTING AND REFINING THE DATASET

- Topic A: Collect the Dataset
- Topic B: Analyze the Dataset to Gain Insights
- Topic C: Use Visualizations to Analyze Data
- Topic D: Prepare Data

3 - SETTING UP AND TRAINING A MODEL

- Topic A: Set Up a Machine Learning Model
- Topic B: Train the Model

4 - FINALIZING A MODEL

- Topic A: Translate Results into Business Actions
- Topic B: Incorporate a Model into a Long-Term Business Solution

5 - BUILDING LINEAR REGRESSION MODELS

- Topic A: Build Regression Models Using Linear Algebra
- Topic B: Build Regularized Regression Models Using Linear Algebra
- Topic C: Build Iterative Linear Regression Models

6 - BUILDING CLASSIFICATION MODELS

- Topic A: Train Binary Classification Models
- Topic B: Train Multi-Class Classification Models
- Topic C: Evaluate Classification Models
- Topic D: Tune Classification Models

7 - BUILDING CLUSTERING MODELS

- Topic A: Build k-Means Clustering Models
- Topic B: Build Hierarchical Clustering Models

8 - BUILDING DECISION TREES AND RANDOM FORESTS

- Topic A: Build Decision Tree Models
- Topic B: Build Random Forest Models

9 - BUILDING SUPPORT-VECTOR MACHINES

- Topic A: Build SVM Models for Classification
- Topic B: Build SVM Models for Regression

10 - BUILDING ARTIFICIAL NEURAL NETWORKS

- Topic A: Build Multi-Layer Perceptrons (MLP)
- Topic B: Build Convolutional Neural Networks (CNN)
- Topic C: Build Recurrent Neural Networks (RNN)

11 - PROMOTING DATA PRIVACY AND ETHICAL PRACTICES

- Topic A: Protect Data Privacy
- Topic B: Promote Ethical Practices
- Topic C: Establish Data Privacy and Ethics Policies