

Introduction to AI and Machine Learning on Google Cloud

This course introduces the AI and machine learning (ML) offerings on Google Cloud that build both predictive and generative AI projects. It explores the technologies, products, and tools available throughout the data-to-AI life cycle, encompassing AI foundations, development, and solutions. It aims to help data scientists, AI developers, and ML engineers enhance their skills and knowledge through engaging learning experiences and practical hands-on exercises.

**DURATION**

1 day

**LEVEL**

100 - Introductory

**FORMAT**

Instructor-led, On-demand

What you'll learn

- Recognize the data-to-AI technologies and tools provided by Google Cloud.
- Build generative AI projects by using Gemini multimodal, efficient prompts, and model tuning.
- Explore various options for developing an AI project on Google Cloud.
- Create an ML model from end-to-end by using Agent Platform.
- Identify the core infrastructure components of Google Cloud that support AI and ML.
- Build and evaluate machine learning models directly within BigQuery using BigQuery ML.
- Compare pre-trained APIs, AutoML, and custom training options on Google Cloud to select the appropriate model building method.
- Use pre-trained APIs, such as the Natural Language API, to perform text analysis.
- Explain MLOps concepts and tools for automating machine learning workflows on Google Cloud.



Overview	6 modules · 36 videos · 4 labs
Who this course is for	Professional AI developers, data scientists, and ML engineers who want to build predictive and generative AI projects on Google Cloud
Products	- Gemini Enterprise - BigQuery Studio - Gemini Enterprise Agent Platform Model Garden
Prerequisites	- Having one or more of the following: - Basic knowledge of machine learning concepts - Prior experience with programming languages such as SQL and Python

Module
01

Course Introduction

Topics	Course introduction
Objectives	- Define the course goal. - Recognize the course objectives.

Module
02 AI Foundations

Topics	• Why AI? • AI/ML framework on Google Cloud • Google Cloud infrastructure • Data and AI products • ML model categories • BigQuery ML • Lab introduction: BigQuery ML
Objectives	• Recognize the AI/ML framework on Google Cloud. • Identify the major components of Google Cloud infrastructure. • Define the data and ML products on Google Cloud and how they support the data-to-AI lifecycle. • Build an ML model with BigQueryML to bring data to AI.
Activities	• Lab: Predicting Visitor Purchases with BigQuery ML • Quiz • Reading

Module 03

AI Development Options

Topics	• AI development options • Pre-trained APIs • Agent Platform • AutoML • Custom training • Lab introduction: Natural Language API
Objectives	• Define different options to build an ML model on Google Cloud. • Recognize the primary features and applicable situations of pre-trained APIs, AutoML, and custom training. • Use the Natural Language API to analyze text.
Activities	• Lab: Entity and Sentiment Analysis with Natural Language API • Quiz • Reading

Module 04

AI Development Workflow

Topics	• ML workflow • Data preparation • Model development • Model serving • MLOps and workflow automation • Lab introduction: AutoML • How a machine learns
Objectives	• Define the workflow of building an ML model. • Describe MLOps and workflow automation on Google Cloud. • Build an ML model from end to end by using AutoML on Agent Platform.
Activities	• Lab: Agent Platform: Predicting Loan Risk with AutoML • Quiz • Reading

Module 05

Generative AI

Topics	• Generative AI and workflow • Gemini multimodal • Prompt design • Model tuning • Model Garden • AI solutions • Lab introduction: Agent Studio
Objectives	• Define generative AI and foundation models. • Use Gemini multimodal with Agent Studio. • Design efficient prompt and tune models with different methods. • Recognize the AI solutions and the embedded Gen AI features.
Activities	• Lab: Getting Started with Agent Studio • Quiz • Reading

Module 06

Course Summary

Topics	• Course summary
Objectives	• Recognize the primary concepts, tools, technologies, and products learned in the course.
Activities	• Reading