Google Cloud

Introduction to AI and Machine Learning on Google Cloud

This course introduces Google Cloud's AI and machine learning (ML) capabilities, with a focus on developing both generative and predictive AI projects. It explores the various technologies, products, and tools available throughout the data-to-AI lifecycle, empowering data scientists, AI developers, and ML engineers to enhance their expertise through interactive exercises.

DURATION
1 Day

LEVEL
Beginner

FORMAT
On-demand (OD) and Instructor -led-teaching (ILT)

What you'll learn

- Recognize the data-to-AI technologies and tools offered by Google Cloud.
- Build generative AI projects by using Gemini multimodal, efficient prompts, and AI agent builders.
- Choose between different Google Cloud product options to develop an AI project.
- Build ML models end to end by using Vertex AI.

Overview	6 modules · 32 videos · 4 labs · 4 quizzes, 5 reading lists
Who this course is for	AI developers, data scientists, and ML engineers
Products	• Gemini multimodal • Vertex AI, Vertex AI Studio, Vertex AI Agent Builder, Vertex AI Pipelines • Gemini Enterprise • NotebookLM • BigQuery ML • Natural Language API • AutoML
Prerequisites	• Basic knowledge of machine learning concepts • Prior experience with programming languages such as SQL and Python

Module 0 Course Introduction

Topics	Course introduction
Objectives	Define the course objectives. Recognize the course structure.

Module 01 AI Foundations

Topics	• A use case • AI on Google Cloud • AI infrastructure • AI models • BigQuery ML • Hands-on lab: Predict Visitor Purchases with BigQuery ML
Objectives	• Recognize the AI/ML framework on Google Cloud. • Identify the major components of AI infrastructure. • Define the data and ML products on Google Cloud and how they support the data-to-AI lifecycle. • Build an ML model with BigQuery ML to bring data to AI.

Activities	• Lab: Predict Visitor Purchases with BigQuery ML • Quiz • Reading

Module 02 Generative AI

Topics	• Generative AI on Google Cloud • Foundation models • Idea to app • Prompt engineering • Deployment and model tuning • AI agents • Agent building with Google Cloud • Hands-on lab: Get started with Vertex AI Studio
Objectives	• Define generative AI and foundation models. • Recognize the prompt-to-production lifecycle and its associated tools. • Define AI agents and their core components. • Identify Google Cloud tools and technologies for building AI agents.
Activities	• Lab: Get started with Vertex AI Studio • Quiz • Reading

Module 03 AI Development Options

Topics	• AI development options • Vertex AI • AutoML • Pre-trained APIs • Custom training • Hands-on lab: Entity and Sentiment Analysis with Natural Language API
Objectives	• Define different options to build an ML model with Vertex AI on Google Cloud. • Identify the features and use cases 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
- How a machine learns (optional)
- Hands-on lab: Vertex AI: Predict Loan Risk with AutoML

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 with Vertex AI.

Activities

- Lab: Vertex AI: Predict Loan Risk with AutoML
- Quiz
- Reading

Module 05 Course Summary

Topics

Course summary

Objectives

Recognize the primary concepts, tools, technologies, and products learned in the course.

Activities

Reading