



Agent Observability on Google Cloud

Course description

Learn how to operationalize AI agents on Google Cloud by implementing observability, monitoring, governance, and performance management practices. Discover how to trace agent reasoning workflows, monitor costs and quality, establish auditability, and align technical observability metrics with business outcomes to build reliable, scalable, and production-ready Gemini-powered agent applications.

The course provides a practical framework for transforming non-deterministic AI agents into transparent, auditable, and scalable systems. Participants learn how to trace agent reasoning processes using Cloud Trace, establish governance controls through Cloud Logging and Logs-Based Metrics, create proactive monitoring dashboards, manage operational costs, and align technical metrics with business KPIs. Through demonstrations and strategic discussions, learners gain the skills required to confidently operate production-grade AI agents on Google Cloud.

- Course level: Intermediate
- Duration: 1 day

Activities

This course includes instructor-led training, technical demonstrations, visual walkthroughs, strategic discussions, observability design reviews, monitoring and governance scenarios, production operations best practices, and knowledge checks and reflection exercises to reinforce learning.

Course objectives

In this course, you will learn to:

- Trace AI agent reasoning workflows using Cloud Trace.
- Understand ReAct loops and agent execution patterns.
- Create observability frameworks for AI agents.
- Implement real-time monitoring and alerting.
- Build custom dashboards for cost and performance visibility.
- Establish continuous quality evaluation processes.
- Implement governance and auditability controls.
- Monitor compliance using Logs-Based Security Metrics.
- Align technical observability metrics with business outcomes.
- Scale AI agents confidently in production environments.

Intended audience

This course is intended for:

- AI/ML Engineers
- Data Scientists
- MLOps Engineers
- SRE Engineers
- DevOps Engineers
- Technical Leads
- Platform Engineers
- Cloud Architects
- AI Operations Teams
- Professionals managing Gemini-powered agent applications

Prerequisites

We recommend that attendees of this course have:

- Familiarity with foundational machine learning concepts.
- Understanding of the distinction between models and agents.

- Experience with Google Cloud services and console navigation.
- Familiarity with software development and DevOps/MLOps concepts.
- Experience with Vertex AI and Google Cloud CLI is beneficial.
- Basic knowledge of Git and version control is recommended.
- Familiarity with logs and monitoring concepts is helpful.

Products covered

- Vertex AI Agent Engine
- Cloud Trace
- Cloud Monitoring
- Cloud Logging
- Cloud Billing
- VPC Service Controls
- OpenTelemetry
- Logs-Based Metrics
- Gemini Enterprise

Course outline

Module 01 - The Google Cloud Observability Foundation

- The Agent Observability Mandate
- Tracing the Agent Engine Workflow
- Establishing the Immutable Audit Trail

Module 02 - Proactive Monitoring and Evaluation

- Implementing Real-Time Metrics
- Designing Actionable Alerting Policies
- Evaluation for Continuous Improvement

Module 03 - Tools for Observability on Google Cloud

- Observability for Audit and Security
- Scaling Agent Development and Deployment
- Scaling the Observable Enterprise

Module 04 - Agent Observability on Google Cloud: Quiz and Reflection

- Review of Core Concepts

Certification details

Participants receive a course completion certificate upon successfully attending the training program.

FAQs

Who should attend this course?

This course is designed for AI/ML engineers, Data Scientists, MLOps engineers, SREs, DevOps engineers, and technical leaders responsible for operating AI agents in production environments.

What is Agent Observability?

Agent Observability is the practice of monitoring, tracing, auditing, and evaluating AI agents to ensure reliability, transparency, compliance, and operational efficiency.

Does this course teach agent development?

No. The course focuses on observability, monitoring, governance, and production operations rather than agent development using ADK, LangChain, or prompt engineering.

What Google Cloud services are covered?

The course covers Vertex AI Agent Engine, Cloud Trace, Cloud Monitoring, Cloud Logging, Cloud Billing, VPC Service Controls, OpenTelemetry, and Logs-Based Metrics.

What are Golden Test Cases?

Golden Test Cases are benchmark evaluation scenarios used to continuously assess AI agent quality, consistency, and performance over time.

Is this a hands-on course?

The course includes demonstrations, visual walkthroughs, operational scenarios, and strategic discussions focused on production-grade AI observability.

How long is the course?

The course is delivered in a 3-hour instructor-led format.

What business benefits can organizations expect?

Organizations can improve agent reliability, reduce operational risk, enhance compliance, optimize costs, accelerate troubleshooting, improve observability, and confidently scale AI-powered applications across the enterprise.