

Drug Discovery Essentials on Google Cloud

This course provides learners with the essential skills to leverage Google Cloud AI and Machine Learning to transform the Drug Discovery (R&D) pipeline. It focuses on accelerating time-to-market and enhancing precision by overcoming the industry's challenges of high cost, long timelines, and low success rates through data and automation. The course is structured around the practical application of key technologies. Learners will gain an understanding of: the AI paradigms (Deep Learning, GNNs, Generative AI); the unified MLOps platform of Agent Platform for building scalable, reproducible pipelines; the role of BigQuery and specialized Accelerators in handling petabyte-scale omics data; and the critical importance of ethical governance and XAI in highly regulated scientific research.

 **DURATION**
2-3 hours

 **LEVEL**
200 - Intermediate

 **FORMAT**
Instructor-led

 **SCALABLE**
1-50, scaled to 1000

What you'll learn

- Describe the value of leveraging AI and ML to enhance drug discovery processes
- Use Agent Platform to streamline drug discovery workflows
- Identify applications of generative AI in drug discovery
- Analyze omics and clinical trial data using Google Cloud tools

Overview	4 modules
Who this course is for	• Pharmaceutical leaders, Biotech leaders, Scientists
Products	• Agent Platform • Google Kubernetes Engine • BigQuery Studio • Gemini Enterprise • Agent Studio on Gemini Enterprise Agent Platform
Prerequisites	• Google Cloud basics and familiarity with Machine Learning basics will be helpful but not essential

Module 01 [Introduction to AI and ML for drug discovery](#)

Topics	• How AI impacts the drug discovery pipeline • Next-gen tools • Google Cloud for drug discovery • Security and compliance
Objectives	• Describe the value of leveraging AI and ML to enhance drug discovery processes

Module 02 [Building AI pipelines for drug discovery with Agent Platform](#)

Topics	• What is Agent Platform • The anatomy of a pipeline • End-to-end pipeline workflow
Objectives	• Use Agent Platform to streamline drug discovery workflows
Activities	• 1 use case demos

Module 03

Generative AI in drug discovery

Topics

- What is Generative AI?
- Core applications in drug discovery
- GCP AI toolkit
- Challenges and best practices

Objectives

- Identify applications of generative AI in drug discovery
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Module 04

AI for omics and clinical research

Topics

- Harnessing genomics with BigQuery
- AI for proteomics
- Integrated clinical and real-world data
- Looking ahead: The future of AI in drug discovery

Objectives

- Analyze omics and clinical trial data using Google Cloud tools

Activities

- 1 use case demos