

Drug Discovery Essentials on Google Cloud

Key information

Course code	Drug Discovery Essentials on Google Cloud
Course version	1.0
Course title	Drug Discovery Essentials on Google Cloud
Description	<p>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.</p> <p>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 Vertex AI 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.</p>
What you'll learn	<ul style="list-style-type: none">• Describe the value of leveraging AI and ML to enhance drug discovery processes• Use Vertex AI to streamline drug discovery workflows• Identify applications of generative AI in drug discovery• Analyze omics and clinical trial data using Google Cloud tools
Duration	3 hours
Level	Intermediate
Format	Instructor-led

Content overview

Who this course is for	<ul style="list-style-type: none">• Pharmaceutical leaders• Biotech leaders• Scientists
Total modules	5
Total videos	0
Total Labs	0
Total classroom activities	2
Prerequisites	Google Cloud basics and familiarity with Machine Learning basics will be helpful but not essential
Products	<ul style="list-style-type: none">• Vertex AI• BigQuery• Google Kubernetes Engine
Not covered	-

Content breakdown

Module 1 title	Introduction to AI and ML for drug discovery
Module 1 topics	<ol style="list-style-type: none">1. How AI impacts the drug discovery pipeline2. Next-gen tools3. Google Cloud for drug discovery4. Security and compliance
Module 1 objectives	<ul style="list-style-type: none">• Describe the value of leveraging AI and ML to enhance drug discovery processes
Module 1 activities	None
Module 2 title	Building AI pipelines for drug discovery with Vertex AI

Module 2 topics	<ol style="list-style-type: none"> 1. What is Vertex AI 2. The anatomy of a pipeline 3. End-to-end pipeline workflow
Module 2 objectives	<ul style="list-style-type: none"> • Use Vertex AI to streamline drug discovery workflows
Module 2 activities	1 use case demos
Module 3 title	Generative AI in drug discovery
Module 3 topics	<ol style="list-style-type: none"> 1. What is Generative AI? 2. Core applications in drug discovery 3. GCP AI toolkit 4. Challenges and best practices
Module 3 objectives	<ul style="list-style-type: none"> • Identify applications of generative AI in drug discovery
Module 3 activities	None
Module 4 title	AI for omics and clinical research
Module 4 topics	<ol style="list-style-type: none"> 1. Harnessing genomics with BigQuery 2. AI for proteomics 3. Integrated clinical and real-world data 4. Looking ahead: The future of AI in drug discovery
Module 4 objectives	<ul style="list-style-type: none"> • Analyze omics and clinical trial data using Google Cloud tools
Module 4 activities	1 use case demos