Course Syllabus

Welcome

Welcome to GoogleX's **Google Cloud Computing Foundations: Cloud Computing Fundamentals** course. This is the first of four courses required for the Google Cloud Computing Foundations Program certificate.

Course Description

The Google Cloud Computing Foundations courses help build cloud literacy for individuals who have little to no background or experience in cloud computing. They provide an overview of concepts central to cloud infrastructure, application development, big data, and machine learning, and where and how Google Cloud fits in.

This is the first course in a four-course series called Google Cloud Computing Foundations. The courses should be completed in the following order:

1. **Google Cloud Computing Foundations: Cloud Computing Fundamentals**
2. Google Cloud Computing Foundations: Infrastructure in Google Cloud
3. Google Cloud Computing Foundations: Networking and Security in Google Cloud
4. Google Cloud Computing Foundations: Data, ML, and AI Google Cloud

This first course provides an overview of cloud computing, ways to use Google Cloud, and different compute options. By the end of the series of courses, learners will be able to articulate these concepts and demonstrate some hands-on skills.

Course Objectives

After completing this course, you will be able to:

- Discuss what the cloud is and why it's a technological and business game changer.
- Describe the different ways a user can interact with Google Cloud.
- Discover the different compute options in Google Cloud.

Google Cloud

Prerequisites

- None.

Time Commitment
1 week, spending 5-6 hours.

Course Syllabus
This course is arranged in 3 modules. We estimate that you will need to spend at least 5-6 hours to complete the course. The course is self-paced, so you have the flexibility to complete modules in your own time.

Module 1 - So, What's the Cloud Anyway?

- Introduction
- Cloud Computing
- Cloud vs. Traditional Architecture
- Iaas, PaaS, and SaaS
- Google Cloud Architecture
- Quiz (Knowledge Check) - So What's The Cloud Anyway?
- Summary

Module 2 - Start with a Solid Platform

- Introduction
- The Google Cloud Console
- Understanding Projects
- Billing in Google Cloud
- Install and Configure Cloud SDK
- Use Cloud Shell
- Lab Intro - A Tour of Google Cloud Hands-on Labs
- Lab - A Tour of Google Cloud Hands-on Labs (verified users only)
- Lab Intro - Getting Started with Cloud Shell & gcloud

- Lab - Getting Started with Cloud Shell and gcloud (verified users only)
- Google Cloud APIs
- Cloud Console Mobile App
- Quiz (Knowledge Check) - Start with a Solid Platform
- Summary

Module 3 - Use Google Cloud to Build Your Apps

- Introduction
- Compute Options in the Cloud
- Exploring IaaS with Compute Engine
- Lab Intro: Creating a Virtual Machine
- Lab - Creating a Virtual Machine (verified users only)
- Configuring Elastic Apps with Autoscaling
- Exploring PaaS with App Engine
- Lab Intro - App Engine - Qwikstart - Python
- Lab - App Engine - Qwikstart - Python (verified users only)
- Event Driven Programs with Cloud Functions
- Lab Intro - Cloud Functions - Qwikstart - Command Line
- Lab - Cloud Functions - Qwikstart - Command Line (verified users only)
- Containerizing and Orchestrating Apps with GKE
- Lab Intro - Kubernetes Engine: Qwik Start
- Lab - Kubernetes Engine: Qwik Start (verified users only)
- Managed serverless computing with Cloud Run
- Lab - Set Up Network and HTTP Load Balancers (verified users only)
- Quiz (Knowledge Check) - Use Google Cloud to Build Your Apps
- Summary

Assessment Summary

Learners will need to gain 75% or above to successfully pass this course. The assessment breakdown is as follows.

Assessment Type	% of Final Grade	Due Date
Labs	100%	By course finish

Please note:

- There are 7 labs in the course.
- The labs are for verified users only and there is a set time limit to complete each lab.
- You can complete the labs at any time while the course is open, however we do recommend that you complete them sequentially, after you complete the relevant module.